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P. A. Hopkins

CASES OF CHOLERA

COLLECTED AT PARIS,

IN THE MONTH OF APRIL, 1832,

IN THE

WARDS OF MM. ANDRAL AND LOUIS,

AT THE

HOSPITAL LA PITIÉ.

BY JAMES JACKSON, JR.

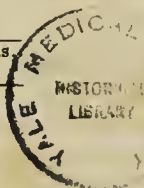


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NOTE

By JAMES JACKSON, M. D., Professor of the Theory and Practice of Physic
in Harvard University.

THIS work consists of cases of cholera with *post mortem examinations* in most of the fatal cases, and of a brief summary, in which the most important inferences from the cases are stated, partly in the form of tables. It was prepared by my son, who is pursuing the study of medicine abroad. He collected the materials at Paris in April last, and put them into form in May at London. The sheets were sent by him in the first week of June; but, owing to accidental causes, they did not all reach me till the last of July.

It may fairly be asked what apology can be made for publishing a new work on this subject, on which so much has been written; and that work by a medical student. It was left to me to decide whether this book should be published, and my decision may be supposed to have been influenced by a very natural partiality. Let me say then, in the first place, that I was jealous of this feeling, and therefore placed the papers in the hands of a medical friend, in whose judgment and fidelity I place entire confidence; and that his advice was unequivocally in favor of the publication.

I certainly regard the work as evidence of zeal and industry on the part of the writer, who made the collection of the materials and the arrangement of them in the course of two months, during which he took his leave of one great city and entered another for the first time. Also I know very certainly that he was prompted in this labor by a desire to do something, which might be useful in his own country, should the cholera reach that, as it has since done. But these considerations would not make me think a work, which was strictly that of a medical student, could claim such attention and confidence, as to be worthy of publication. It is not however to be regarded as strictly his work. The cases occurred in the Hospital La Pitié, and were under the charge of M. Andral and M. Louis,

two physicians deservedly holding a very high rank in the estimation of foreigners, as well as of their own countrymen. These two gentlemen are particularly distinguished for the accuracy, with which they note the phenomena of diseases and the pathological changes in the dead body. In these respects they are not surpassed by any. The epidemic, which commenced in Paris at the very end of March, was a new disease to them. They devoted to the study of it almost the whole of their time and of their energy. It was my son's good fortune to be permitted to follow them closely, and to have the phenomena pointed out by them both in the living and the dead subject. It was his endeavor to note exactly what they demonstrated. They labored to ascertain the facts, unbiassed by any theory. It was his aim to communicate those facts, accurately delineated by these great masters, to those who had not the same opportunity, but who might afterwards be called upon to contend with the formidable disease, to which the facts relate. It is true that much has now been learnt on this subject by personal observation in our own country; yet there are many who have not yet had the painful opportunity for such observation. And those, who have, may find themselves aided by the experience of men so highly qualified for exact observation, as the distinguished pathologists before named.

The inferences, which are drawn from the following cases, may be confirmed or refuted by more numerous observations. The writer seems aware that the cases are not sufficient in number for a decisive judgment on many points. Those inferences however, especially as expressed in a tabular form, may serve as references, with which the observations of others may be conveniently compared. It will not be understood that these cases are all which occurred at the Hospital La Pitié. They are all of which the writer was able to take accurate notes; and he is cautious in drawing inferences except from those.

The physician, who has studied the history of cholera, may be surprised that he does not find here recorded any of those cases, in which the disease was sudden in its attack and rapid in its course, so as to terminate life after a few hours of suffering. But on re-

flection it will be obvious that cases of that description can rarely be met with in a hospital, unless in military establishments. In these, arrangements may be made for the immediate removal of the sick to a hospital on the first moment of seizure.

If this work professed to explain many doubtful questions respecting cholera, to decide on its causes, its intimate nature, and its treatment, it might attract more regard. It professes only to be a contribution toward the natural history of the disease. The natural history is the first, I had almost said the first and the last thing, to be studied in every disease. This contribution may not enable any one to decide on the proximate cause of cholera. It does not profess to offer any mode of treatment, which can be relied on in severe cases of the disease. On the contrary, it rather shows the inefficiency of the methods tried in those cases.

One of the most important inferences to be drawn from these cases is the frequent occurrence of pneumonitis, often latent, after reaction. This circumstance would have been overlooked, unless examinations after death had been carefully made in the parts not suspected, as well as in those which had been. They may still pass unnoticed during life, unless we employ percussion and auscultation in those cases in which reaction is not followed promptly by convalescence.

That no one be unduly discouraged by these and similar reports, of the failure of remedies in the cholera hospitals of Europe and this country, I wish to avail myself of the opportunity to add a few remarks on the treatment. The English practitioners, who became familiar with this disease in India, have given more encouraging accounts of the effects of remedies, than any physicians have done from their own experience in this country or in Europe. Whence the difference? Has the disease really been more severe; or has it changed its character, since it left the warm country, in which it commenced its career? Both these things may be true, but they have not been shown to be so. If there be any difference, it certainly appears to me that the disease has more rarely been short and rapid in its course, since it entered Europe, than it was in India.

Were the physicians, who practised in India, deceived? May it not be that their success occurred only at times and in places, where and when the disease had become comparatively mild? A fair examination of their testimony does not show this to be true. That the disease did vary in severity and fatality at different places and in different seasons, they were fully aware. If they were deceived, it was not after having witnessed the disease for a few weeks only, but after abundant experience for three or more years, and after having had time to review their practice calmly.

But why then has not this mode of treatment succeeded in Europe and this country, as well as in India? Before answering this question, I must ask whether that mode has been thoroughly and sufficiently tried. It is too common an error, in philosophical investigations, to attempt to explain facts, before the facts are ascertained. Let us first ask, then, Has the fact been ascertained that this treatment has been tried and has failed? It may be that it has. I have not read every thing which has been written on the subject, and much may have been done, of which no account has been published. But I have not seen any statement showing an extensive and adequate trial of the treatment referred to, and of the failure of it. It therefore seems to me that the mode of treatment, here referred to, claims a trial among us, *on the ground of experience* more than any other. If it should fail, after a sufficient and fair trial, I should regret it; but I should feel no reproach for having promoted, or practised it, as there is good reason for the experiment.

It is plain that the following cases do not present many instances of the Anglo-Indian practice. There were good reasons for this. The first object was to gain a knowledge of the disease. Besides, a larger proportion of the cases were in an advanced stage and of a desperate character. Other good reasons might also occur to the learned physicians who had charge of the cases. And indeed it must be allowed that the French are not very ready to adopt the energetic practice, so common in the treatment of acute disease among English and American physicians.

Further, in most diseases, and in this especially, hospitals give

an opportunity for learning their natural history ; and sometimes for a more thorough trial of remedies than can be made in private practice. But, in general, the ill success of remedies in acute diseases, when employed in hospitals, should not be admitted as evidence that the same treatment would fail in private practice. For this an important reason is that hospital patients are mostly persons impaired in constitution by the miseries of poverty, or the greater miseries of intemperance and debauchery. But a still more important reason is that the hospital patient rarely comes under treatment until an advanced stage of disease. In the cholera, more than any other acute disease, this circumstance is alone decisive as to the result of treatment.

In respect to the remedies for cholera, and likewise as to other points, my son refers me to a paper which is, or is soon to be published by Dr. Smith, of N. Carolina. He was officially attached to the Necker Hospital in Paris during the prevalence of the cholera in that city. He had there ample opportunities for gaining accurate information, "of which he well knew how to avail himself, and much may be anticipated from him."

At the hospital La Pitié it was my son's good fortune to be associated in the study of cholera with Dr. Gerhard and Dr. Pen-nock, both of Philadelphia. A similarity in their pursuits tends to bind together, as well as to bring together, young men of the same country, when absent from their common home. But the professional zeal and professional acquirements, as well as the amiable characters of the gentlemen just mentioned, had engaged my son's respect and esteem, in addition to the causes just mentioned ; and the union among them was more strongly cemented, when they remained together exposed to the dangers of a cruel disease, with the common object of studying that disease. Hence it was my son's request that I should not publish the following sheets without referring to them in terms expressive of his feelings and sentiments towards them. It may perhaps be hoped that they will add to these gleanings, from the ample stores, to which they had access.

In stating that the materials of this volume are derived from MM. Andral and Louis, consisting of the observations they pointed

out to their pupils at the bed-side and in the dissecting-room, it will not be imagined that I would represent those distinguished pathologists as responsible for the accuracy and fidelity of the observations. It is enough that they permitted the publication of them, should that be deemed expedient, in this country. For this kindness my son begs me to express his best thanks. His deep sense of gratitude to these gentlemen seems to be more than he knows how to express; as their condescension and goodness to him were equalled only by the invaluable instructions they gave him. He had no claim upon them, except a desire for knowledge and a love of truth. But indeed this love is always a bond of union among those who possess it, allying the most exalted to the more humble.

May I be permitted, thus publicly, to express how fully my own opinion accords with his in regard to the highly valuable labors of these two learned and talented physicians, and how strongly I sympathize with him in the feeling of deep obligation for the kindness they manifested toward him. By parents it will be readily understood how surely the services rendered to a son, especially in a foreign land, will beget the lively gratitude of a father.

Evidences of inexperience in the art of authorship will be sufficiently obvious, perhaps, in the following pages. I have thought, however, that these would not be very severely judged. At any rate, I have chosen to leave them as they are. Some verbal errors and some expressions which might be thought equivocal, obviously from haste, I thought it right to correct. Two of the cases, (LV. and LVI.) are incomplete. I should have omitted these, were it not that the tables would not then accord with the cases as to number. The result was not fatal in either of these two cases, as appears by a comparison of the cases with the tables. The word *aphony* is frequently used. It is important to note that it is not used in its most strict sense. When it is not said to be perfect, it is meant to imply only that the patient could not speak above a whisper, or only in a low whining voice, peculiar to cholera patients.

Boston, August 22d, 1832.

CASES OF CHOLERA,

COLLECTED

AT PARIS.

THE following cases were collected at the Hospital de la Pitié at Paris, during the month of April 1832, in the wards of MM. Andral and Louis. A great part of the Notes and almost the whole of the dissections were translated at the bedside and the dissecting-table, from the dictations of these accurate and distinguished pathologists.

The cases are sixty in number, and are divided into two general classes of thirty each. The first consists of those, in which no reaction occurred, or in which it was but very feeble and transient; the second of those in which full reaction was established.

Next to the detailed cases follows an analysis of the same, in which I have endeavoured to present them under the various points of view, which seemed to me most important.

Lastly are a few remarks upon the nature of the disease. These are very brief; as I consider facts far more valuable than speculation.

CLASS I.

CASES IN WHICH THERE WAS NO REACTION.

CASE I.

St. Athanase, 26. . . . Male Ward.

Under care of M. Andral.

PICARD, æt. 53, porter, entered April 6th, 5½ A. M., says he is well-nourished, generally enjoys good health, and had committed no excess previously to present illness. Without any peculiarity in food, or otherwise, after working all day as usual, was suddenly taken last evening, (5th,) with severe diarrhœa, unaccompanied with colic, watery (says six chamber-pots in a short space of time); no nausea nor vomiting—even up to the present time (6th, 8 A. M.); cramps came on with the diarrhœa and still continue, becoming very severe in legs, and occasionally, though feebly, in arms.

April 6th, 8 A. M. Now, complains of great exhaustion; face violet and cold; lips of a deep violet, almost black; eyes hollow and encircled by a dark ring; conjunctivæ injected; pupils natural; feet and legs of a deep violet; skin of arms and thighs covered with violet spots; feet warmed by a metallic ball; says he does not feel cold. Tongue violet, cold, moist with a whitish yellow coat; no bad taste in mouth; no nausea; no vomiting; thirst not urgent; no pain in abdomen, even on pressure; no stool for two or three hours. Pulse 84, thread-like, uniform; says he has passed urine at his stools; resp. 48, costal. Aphony since midnight. Cramps, now very severe, by far the predominant symptom at present.

A vein was immediately opened, much against the will of the patient, and blood to the amount of ¾ vi. only

could be obtained; this was black and curdled only, but did not coagulate. The cramps continued severe during the bleeding.

R. Aq. Menth. V. ℥ iv.
 Æther. Sulphur. ℥ i.
 Ammon. Liquid. gtts. xx.
 Camphor. gr. xx. M.

Take half a spoonful every hour.

R. Hydr. Sub. Mur. gr. xxiv. to be taken in two powders, at half an hour's interval.

Friction with oil of turpentine to limbs.

Sinapism to abdomen. Lemonade.

The patient died at half past 10 A. M. of the same day, before any of the above remedies could be administered. We shall again refer to this case, in connection with three or four others, to show the inutility of an attempt to obtain blood, while the cold stage is so strongly marked, without previous stimulation external or internal, or both.

CASE II.

St. Paul, 22. Male Ward.

Under care of M. Louis.

LASSU, æt. 60, hostler, entered April 24th, 8 A. M. well-nourished, sleeps in a comfortable stable, and is guilty of no excesses; enjoys perfect health; was well yesterday, having had two or three somewhat liquid stools only for the two last days, which he says is habitual. He slept well during last night and got up this morning at 3 o'clock, feeling perfectly well, to feed his horses as usual. Between 4 and 5 o'clock he was taken with diarrhœa, and has already had ten stools without colic; cramps commenced soon after in the lower extremities, and have been almost constant since; began to vomit on coming to the hospital; matter vomited is insipid; no sensation of cold or heat at the debut, nor sweat nor urine

since ; the voice became instantly feeble ; neither headache nor dyspnœa, and thirst within the last half hour only. He was brought to the hospital on a litter.

April 24th, 8½ A. M. Face moderately violet, cool, especially the nose ; eyes hollow ; folds of the skin of the neck very slowly effaced after pinching ; fore-arms and trunk of natural temperature ; legs cold ; skin of the upper part of chest and neck somewhat livid and cool. Tongue cool and very livid ; thirst not very urgent ; no pain in any part of the abdomen even on pressure ; has vomited since entrance a clear, colorless liquid, in which float numerous little flakes of no very regular form ; slight colic occasionally. Pulse 88, very small and contracted, but regular ; veins of the fore-arms quite apparent from their color, but not at all prominent. Respiration 36, rather high, but no feeling of dyspnœa. No headache ; drowsiness ; senses good ; intelligence perfect ; voice very hoarse ; cramps now in all the extremities ; prostration not extreme.

Lemonade. Common enema $\frac{3}{4}$ iv., with laudanum 5 ss., to be given every three hours.

Friction to the lower extremities.

April 24th, 11 A. M. Two enemata have been given. Now, chin very blue ; indifference to drink ; no vomiting nor stool since enemata :—complains of oppression at the epigastrium ; pulse scarcely perceptible. Dozing, from which he is roused by the cramp.

Frequent frictions. Sinapisms to the legs.

April 24th, 4 P. M. Deep plumbago color of whole surface ; incomplete loss of sensation and intelligence, the patient seeming to understand the questions put to him, though he can make no reply by either words or signs ; fore-arms rather cold and covered with sweat ; the radial pulse is still perceptible, but very feeble and frequent ; carotids also beat feebly ; eyelids half open, motionless ; eyes also motionless in their orbits, much more sunken than this morning, brilliant, but without expression ; mouth half open. Respiration 32, high, noisy.

Died an hour afterwards.

Autopsy April 25th, 9 A. M. 16 hours after death.

External appearances. Skeleton rather large; emaciation not great; livid spots upon the lower extremities, the face and the head, which is bald; abdomen not completely cold; limbs extremely rigid; muscles red, pretty large.

Abdomen. Stomach rather larger than common; contains a considerable quantity of a greyish somewhat thick fluid, in which are floating numerous flakes of mucus, likewise greyish. Internal aspect of the stomach greyish and of a very slight livid pink, with some spots of a vermillion color on its anterior face, near the cardia, which consist of a number of little red points more or less confluent; mucous membrane of a natural velvet appearance along the small curvature and in the neighbouring parts for four or five inches; elsewhere it is granulated (mamelonnée), especially near the large curvature and in the great cul-de-sac; mucous membrane of good thickness everywhere, giving a strip* of two to four lines in the great cul-de-sac, of six to eight along the large curvature, and twelve or more along the small; but very slightly injected in its own substance; the sub-mucous cellular tissue being more so.

Small Intestines. Somewhat distended throughout; of a whitish aspect externally with streaks or lines of a livid lilac color, which seem to be owing to enlarged vascular branches, distended by a little gas and a great quantity of an opaque, as if milky, liquid of a whitish grey color; at first rather thick, but becoming less so towards the cæcum, where it is likewise most abundant; this liquid contains numerous white filaments, either separate or united, forming a hairy appearance in some places; there is no green fluid in any part of this intestine; there is likewise, besides the first mentioned

* i. e. an incision being made in the membrane, it is seized by the cut edge and a portion is stripped off, showing, by its extent, the consistence of the membrane and its adhesion to the subjacent tissue.

fluid, a considerable quantity of light yellow mucus, which remains adherent to the first half of the intestine and exists in smaller quantity below; it is, however, easily raised from the internal surface, which is of a greyish pink color, becoming less pink towards the lower part of the organ. The mucous membrane is everywhere white in its own substance, except at intervals where it is slightly injected; sub-mucous tissue more injected. Mucous membrane of its natural thickness, being rather thicker in the jejunum than in the ileum, and perhaps twice as thick in the duodenum; giving a strip of two to five lines in the jejunum, of five to ten below, increasing towards the end of the ileum. Brunner's glands in the last half of the ileum, very distant from each other, and at first as small as a grain of mustard-seed, in the last three feet more nearly approached to each other, and as large as millet-seed. Patches of Peyer's glands seen through the whole extent of the ileum, some of them projecting slightly, but distinguished only by the absence of the valvulæ conniventes, and some of them by their greyish points; natural. *Mesenteric glands* small, not livid.

Large Intestines.—Rather large, containing a considerable quantity of a yellowish liquid, which resembles whey in its appearance, and in the two last feet has the aspect and consistence of pus. Internal surface everywhere pale, except a slight lilac shade in some points. Mucous membrane of its ordinary thickness, yielding a strip of two to four lines in the cæcum, about the same in the ascending and transverse colon, and from three to six below. A few glands are seen of half a line in breadth in the two last feet of the intestine.

Liver of a good size, rather pale, finely granulated; containing a moderate quantity of blood and rather more easily penetrated than common. The gall-bladder contains a moderate quantity of a greenish liquid which is not very fluid.

Spleen rather large; of a somewhat deep red color, containing several small cysts from half to a whole line

in diameter, which are very hard and contain a hard cretaceous material.

Kidneys of their natural size and color. *Bladder* of the size of a pear, containing about a spoonful of a greyish yellow liquid; mucous membrane healthy with some few points of vascular injection.

Thorax. *Pericardium* healthy, contains no serous fluid. *Heart*: left ventricle pitchy externally; its walls are at least eight lines thick, and its cavity likewise, as well as that of the right, rather larger than usual; it contains much black blood, but no fibrinous coagula. *Aorta* contains liquid black blood without coagula.

Lungs. *Left* universally adherent to the pleura; upper lobe light, of a bright red internally, excepting some black spots, at which the tissue of the lung is not evidently more dense than elsewhere; lower lobe heavier than upper, of a blackish red in its half nearest to the division between the two, especially behind, without any appearance of granules, containing a considerable quantity of blood mixed with small bubbles of air; nothing else peculiar. *Right* not at all adherent; upper and middle lobes less red than upper lobe of left, but having like that some black spots upon its surface; lower lobe heavier, but less so than that of left, having posteriorly for the depth of ten or fifteen lines a black red color, not granulated, but circumscribed and strongly contrasting with the neighbouring red tissue; this dark portion of the lungs is easily penetrated by the finger, especially where it is most dense; the blood is easily pressed from it, and after this pressure the cohesion of the pulmonary tissue is the same as in the healthy portions.

Nervous System. Bones of cranium rather thick; infiltration under the arachnoid of a considerable quantity of a livid reddish liquid. *Cerebrum* rather small, quite moist; cortical substance of a deeper color than natural, greyish; whole substance of good consistence; white substance moderately injected; a spoonful and a half of reddish serous fluid in each lateral ventricle; cor-

pora striata of rather a deeper color than common; although its cohesion is good, yet the brain is a little flaccid. Pons Varolii natural; cortical substance of the cerebellum of a livid pink tinge; a little red serous fluid in the occipital fossæ.

Spinal Marrow. The vessels covering its surface are somewhat injected; otherwise its color and consistence are natural. The principal nerves of the upper and lower extremities are of their ordinary color and consistence.

Superior cervical Ganglia an inch long and a line broad; of a pale whitish grey, not far separated from the middle ganglia, which are but half as large; both of them firm and natural.

Par Vagus natural, having some reddish lines on its surface and in the intervals of its fibres.

Semilunar Ganglion greyish and reddish, about a line in thickness and very firm.

I did not see the case just related. It occurred after I left Paris, and the notes of it were sent me by my friend M. Maunoir, as affording evidence that although the epidemic influence had greatly diminished, considered with respect to the numbers attacked with the disease, it yet remained in all its early violence so far as may be judged by the severity of its effects upon one individual.

I think that one can scarcely hesitate to consider the contents of the large intestines and the condition of its mucous membrane as undeniable evidences of inflammation, to say nothing of the stomach and small intestines.

The morbid appearance of the lung, so carefully described by Louis, I presume to be an apoplexy of this organ. It did not exist to a very great extent, however.

CASE III.

St. Athanase, 30. . . . Male Ward.

Under the care of M. Andral.

BATAILLIER, æt. 56, day-labourer, often out of work, and not well-nourished. Has had for three days headache and diarrhœa (seven or eight stools daily), which have deprived him entirely of sleep. This morning (April 3d,) at 6½ A. M., five or six vomitings of a green liquid, preceded by a chill; constant stools since.

April 3d, 9 A. M. Face and skin generally slightly violet; nose, cheeks and hands cold; eyes sunken, encircled by a dark ring; slight injection of conjunctivæ; pupils natural; says he feels cold. Tongue cool and violet; constant nausea; pain at epigastrium, increased on pressure. P. 112, small, though perceptible; regular. Respiration 36, costal; urine last time at 6 A. M. Cramps frequent, since morning, in all four extremities; aphony.

Infusion of lime flowers with syrup of gum.

Take a spoonful of following mixture every hour.

R. Aq. Menth.	℥ iv.
Sulph. Quin.	gr. xv.
Æther. Sulphur.	gtts. xv.
Syr. Simp.	℥ i.

Friction of limbs with Tr. Cantharid.

Died at 3 A. M. April 4th. Autopsy 5 P. M. same day, fourteen hours after death.

External appearances. Body very rigid: limbs violet, livid.

Œsophagus white; numerous follicles seen upon its internal surface.

Stomach much distended by gas, very large; containing only the drink taken during life; liquid of a milky whiteness lining internal surface near the pylorus. Mucous membrane of a pinkish hue, with a deeper red tinge

along the great curvature; mucous membrane of posterior face softened; numerous ecchymoses at the left extremity of the great curvature: small schirrous tumor as large as a filbert near the pylorus.

Small Intestines. In first foot is a liquid of the color of coffee to which milk has been added; a little lower it becomes that of French chocolate (reddish brown) and holds in suspension myriads of greyish corpuscula; still lower (25 feet from the pylorus), are seen numerous whitish masses, and the liquid is more decidedly red; three feet above the cæcum, the liquid is of the color of blood, and contains a greater abundance of the solid masses, rendering it quite thick. Mucous membrane brownish from imbibition of liquid, except in the last six feet, where it is of a bright pink color, and in the very last part of an intense red; here it is also granular but of good consistence. Patches of Peyer's glands in number twenty-three of the following dimensions: 1st, 10 lines in length by 3 in breadth; 2d, 8—3; 3d, 6—4; 4th, 9—3; 5th, 4—2; 6th, 12—4; 7th, 11—4; 8th, 9—3; 9th, 5—3; 10th, 3—2; 11th, 6—4; 12th, 4—1½; 13th, 11—4; 14th, 19—3; 15th, 31—4; 16th, 13—3; 17th, 15—2; 18th, 4—2½; 19th, 12—4; 20th, 5—3; 21st, 8—3; 22d, 12—4; 23d, 33—5; all pale, and between them at intervals a few of Brunner's glands.

Large Intestines. From cæcum to end of intestine is a puriform mucus of a reddish grey color; of a semi-gangrenous odor; cæcum of an intense livid red; rest of intestine white, except an ecchymosis of fourteen lines in length and twelve in breadth near the end of colon; infiltration of blood into the mucous membrane.

Liver—twelve inches long, six thick; pale internally; of its ordinary consistence; bile of a deep dark green color.

Spleen—eight inches long, one inch and five lines broad; of a pale red color; of good consistence.

Kidneys—of natural color; several infundibula contain a little puriform matter. *Bladder* greatly contracted, lined with a similar puriform or milky liquid.

Thorax—*Pericardium* dry. *Heart* contains a black curdled blood, without any coagula; tissue firm, rather red; *Aorta* contains a liquid black blood without any coagula; internal surface pale, white.

Lungs—crepitant, of a pale pink color anteriorly; engorged posteriorly. *Larynx* white, containing a little froth.

Nervous System. Veins of the membranes of the brain injected, cerebral substance somewhat so as shown on the incised surface; no appreciable lesion in brain.

Semilunar Ganglion—reddish externally at its circumference, but white at centre; violet internally.

CASE IV.

St. Athanase, 29. . . . Male Ward.

Under care of M. Andral.

LUCAS, æt. 40, shoemaker, entered hospital April 3d, 8 P. M. At times out of employment, but sufficiently nourished during winter; habitually in perfect health; large frame, strongly built. Was taken suddenly on April 3d, at 3 P. M. with frequent watery stools, colic and head-ache; at 6 P. M. began to vomit a watery liquid; only one vomiting during the night after entrance; cramps likewise at 6 P. M. in legs and arms, which have since continued.

Now, April 4th, 9 A. M., eyes hollow, encircled by a dark ring, haggard; pupils natural, right conjunctiva somewhat injected; cheeks of a livid red; lips violet; skin of hands wrinkled, these with whole limbs violet; whole surface cold; cold clammy sweat on chest. Tongue cool, with a white coat, somewhat violet at its edges; thirst urgent; no nausea nor vomiting; occasional pain at epigastrium; abdomen somewhat tympanitic. Pulse threadlike at wrist, cannot be counted, 104 at carotids. Respiration 42. Passed a few drops of urine

once last evening, only time since entrance. Intellect clear, memory good; voice very feeble; at this moment cramps excessively severe, drawing loud cries from the patient.

While the cramps still continued, after strong friction of the arm, a vein was opened, and about $\frac{3}{4}$ i. of blood obtained guttatum. Finding it thus impossible to get blood, M. Andral had ordered 40 leeches to be immediately applied to the epigastrium. But in less than ten minutes, renewal of excessive cramps, loud cries, great agitation, face completely violet, mouth filled with foam.

Died $9\frac{1}{2}$ A. M. April 4th. Autopsy 6 P. M. same day, $8\frac{1}{2}$ hours after death.

External appearances. Body very rigid; face livid as after asphyxia; muscles large, firm, of a livid red.

Abdomen. Stomach filled with a dirty white fluid, in which float numerous corpuscula. Mucous membrane of the anterior face, of a whitish pink, and of good consistence; posterior face the same; some small ecchymoses along the large curvature; a few follicles seen about cardia.

Small Intestine—contains in its whole extent a dirty white fluid, becoming clearer towards its lower extremity, where also are seen a greater abundance of small white masses. Eleven patches of Peyer's glands were seen, of the following dimensions: 1st, 6 lines in length by 4 in breadth; 2d, 4—3; 3d, 13—4; 4th, 16—5; 5th, 17—5; 6th, 13—3; 7th, 8—2; 8th, 20—7; 9th, 24—5; 10th, 15—5; 11th, 32—8; all pale, white; mucous membrane generally, until within the last six feet, very pale, white; in last feet of a general pink color, slightly so at some points and passing to an intense red at others. Mesenteric glands healthy.

Large Intestine—contains a fluid resembling that of small intestine in enormous quantity. Cæcum, ascending and transverse colon internally of a livid red color, which ceases from this last to the rectum.

Liver—Eleven inches long, six thick; of a fawn color, greasing the scalpel; consistence good.

Spleen—five inches long, three broad; of violet red color and good consistence.

Kidneys—left reddish; infundibula contain a small quantity of a white liquid which is thinner and more limpid than common; right, the same, except that the liquid is rather thicker.

Bladder—contracted, containing a tea-spoonful of a dirty white liquid.

Thorax. Pericardium very dry. Other thoracic organs by accident not examined.

Head. Membranes greatly injected; medullary substance of brain considerably so, as shown by the bloody points on the incised surface; of good consistence; ventricles empty; no appreciable lesion in brain.

The severity of the cramps seemed here to be one of the immediate causes of death. They were in truth most agonizing.

This case is a 2d instance of the inutility of attempting to bleed under such circumstances, without producing reaction previously.

CASE V.

St. Athanase, 31. Male Ward.

Under care of M. Andral.

A * * * *, æt. 66, house-painter; was perfectly well last evening (April 1st.) when he went to bed; after a few hours of troubled sleep, he was awaked at midnight with vomiting and diarrhœa, yellowish watery stools; soon followed by severe cramps in the whole of the lower extremities. He was at once brought to the hospital, where the vomiting and diarrhœa have continued to the present time.

April 2d, 9 A. M. Eyes hollow and encircled by a dark ring, but preserving their lustre; nose and cheeks cold; skin of face and limbs violet; limbs now partially warmed

by artificial means. Tongue cold, covered by a yellowish thin coat, without redness at its edges; no pain in abdomen; thirst moderate, preferring cold drinks. Pulse 68, scarcely perceptible; no sweat; no urine since invasion. Resp. very costal, 28; murmur of respiration is not loud in proportion to the elevation of the chest. Mind clear.

Infusion of mint and lime flowers for drink.

Take a spoonful of the following mixture every hour.

R. Aq. Ment. V.

Aq. Tiliæ a. a. ʒ i.

Tinct. Opii. ʒ iii.

Syrup. Simp. ʒ i. M.

Died on the 2d. Autopsy April 3d, 10 A. M.

The hour of his death is not marked upon my notes. I did not see this case myself—one of my friends kindly lent me his notes to copy.

External appearances. Not noted.

Abdomen. Stomach of a remarkable size, containing a pinkish, inodorous fluid, in which float broken morsels of undigested food and numerous small white masses. General pinkish tinge of internal surface especially deep about the œsophagus; slight injection of sub-mucous cellular tissue. The whole mucous membrane granulated, but principally along the large curvature and towards the pylorus. Mucous membrane of good consistence everywhere.

Small intestines. In the duodenum and jejunum is seen a liquid of a light brownish red or chocolate color, in which myriads of whitish corpuscula are floating; in the whole extent of the ileum this liquid is more of a pinkish hue, containing the same little bodies, of greater size and more numerous; and towards the end of this intestine the liquid is of a decided red, and transparent. Internal surface of duodenum greyish, while its villousities are slightly pink; this pink color increases in the jejunum, where in some places the mucous membrane is quite red between the villousities, in some spots being

injected with bright red. In the last four feet of the ileum the mucous membrane is of a very bright red color, especially in the last foot, where are seen several white, disseminated follicles of Brunner; in some points of the ileum, the mucous membrane is ecchymosed and soaked with blood. Eight patches of Peyer's glands were seen white, while the neighbouring tissue was red.

Large intestines contain a liquid of a beautiful pink color, but without any of the corpuscula above mentioned, homogeneous. The cœcum internally is of a slate-color in the intervals of its villousities, which are pink. In the ascending colon over an extent of nine inches in length, and nine lines in breadth, the mucous membrane and its villousities are intensely red, as in the four last feet of the small intestines. Mucous membrane throughout is of its natural consistence.

Liver of ordinary size, externally livid; internally brownish red. Bile dark green.

Spleen healthy.

Kidneys engorged with blood; a little whitish, thick, homogeneous fluid in several of the infundibula.

Bladder much contracted and hard, its walls being seven lines thick; contains a few drops of a very turbid urine; its mucous membrane thrown into folds having the appearance of columns; no trace of redness internally.

Thorax. *Œsophagus* pale, with several white follicles disseminated as usual. *Larynx* empty, natural; mucous membrane of *Trachea* slightly injected. *Lungs* healthy.

Pericardium extremely dry, as if it had been exposed to the rays of the sun, like parchment; contains no serous fluid. Substance of the *Heart* of rather a livid red color, of natural consistence; its cavities are filled with half liquid coagula. In the arch of the aorta is seen a large coagulum, white and firm; in the rest of this vessel is a black liquid blood; its internal surface is white.

Head. Cerebrum and cerebellum rather soft, but consistent. No serous fluid in the ventricles. *Medulla Spinalis*, *Semilunar Ganglion* and *Great sympathetic nerve* healthy.

CASE VI.

St. Charles, 16. . . . Female Ward.

Under care of M. Louis.

BLANCHAT, æt. 23, labouring woman, entered April 12th, 4 P. M. Was yesterday in good health; taken suddenly this morning (12th,) 7 A. M. with severe diarrhœa and vomiting; two hours after, cramps supervened in lower extremities; went to bed at 9 A. M. Is now nursing a child.

April 12th, 4 P. M. Has just entered. Eyes much sunken; face, hands and fore-arms blueish; lips violet; face cold, except forehead, which is of its natural temperature; hands, fore-arms and feet cold; rest of body of natural temperature; neck and upper part of the breast of a blueish white color, but not cold; says hands and feet do not feel cold, and has no sensation of cold internally; folds of skin of neck very slowly effaced after pinching. Tongue cool, whitish, slightly livid; thirst intense. Pulse imperceptible; complains of pain like great oppression, and begs to be bled. Intelligence perfect; sight troubled; hearing natural; aphony.

She was at once bled; only $\frac{3}{4}$ vi. of blood could be obtained, and that guttatim. 40 leeches immediately to epigastrium.

Lemonade for drink. $\frac{3}{4}$ ii. of the antispasmodic mixture, to be taken in spoonfuls. $\frac{3}{4}$ iv. of flax-seed tea with $\frac{3}{4}$ i. laudanum as an enema. Frictions with liniment of ammonia.

The oppression was considerably diminished after the leeches. The patient died on the 13th, $3\frac{1}{2}$ A. M.

Autopsy 13th, 10 A. M.— $6\frac{1}{2}$ hours after death,

External appearances. Skeleton perfect, rather large; face cold; upper and inner part of thighs livid; limbs very rigid. Mammæ very fully developed, and almost

deprived of fat ; substance of left of a red pale color, moist, composed of a multitude of granules connected together by a dense cellular tissue, and furnishing an abundance of a white liquid on incision ; right the same, but rather less red and not quite so voluminous.

Abdomen. Great omentum very slightly moist and a little viscid to the touch ; covers the whole of the small intestines.

Stomach voluminous, half as large again as in its natural state ; distended by gas ; containing only a small quantity of a light yellowish green mucus. Internal aspect—anterior face of an unequal bright pink color in its two superior thirds, rather yellowish or greyish with a few red points in its pyloric third ;—posterior face of nearly the same color, except at upper extremity of the great cul-de-sac, on the left of the small curvature, where it is of a deep yellow color ; near the pylorus the mucous membrane seems to be granulated, which is more evident near the great curvature, and very decidedly so for about an inch from the pylorus upon the posterior face ; this appearance is owing to numerous round spots of a line in diameter, sensibly prominent both to sight and touch, white at their centre, and slightly lilac at their circumference ; at the centre of several of them are seen little livid red points, generally elongated, but sometimes round like a dot ; these points exist also occasionally in the intervals ; some of these whitish spots have no such central point, especially in one patch of two inches in extent, where they are mostly confluent ; the red points above indicated are much more numerous on the anterior face near the pylorus, where four or five are frequently seen united upon the same spot. These small points are perhaps only a less advanced degree of the dotted appearance of some other parts of the stomach. The granulated appearance is again seen on the anterior face near the cardia, over an extent of four inches. Mucous membrane everywhere slightly injected in its own substance, but of natural consistence ; thickness proportion-

ally rather more than common towards right side of cardia, elsewhere natural for the organ in such a distended state.

Small Intestines—externally of a pale reddish tinge; quite moist; distended; upper half contains a turbid greyish liquid, which holds in suspension an abundance of white or yellowish flakes; these are not homogeneous but seem as if composed of a multitude of filaments somewhat flattened and irregularly connected together; in last half there is likewise an abundant liquid, quite fluid and somewhat reddish, containing numerous flakes of mucus, with very few of those first described in jejunum, which last, at a foot's distance, resemble delicate loose moss under water. One lumbricus found in this intestine. Internal surface generally pale through whole extent. Mucous membrane evidently thicker than usual in its whole extent, more so in some parts of ileum than in jejunum; everywhere of good consistence, except in three first feet of jejunum, where it gives a strip of two or three lines only. In duodenum and three first feet of jejunum follicles of Brunner numerous, then disappearing, but reappearing in ileum, in whose whole extent they are much more numerous than in jejunum, and particularly so as we approach cæcum; white, without any central point, of the size of a grain of millet, and larger towards cæcum; they are not unfrequently confluent, being in some spots not more than half a line distant. Some of the patches of Peyer's glands of a size proportional to that of the intestine, slightly violet, projecting very slightly above surface.

Some mesenteric glands corresponding to the upper portion of the jejunum, and also a few to the latter portion of the ileum reddish, of the size of a large bean.

Large Intestines—scarcely more voluminous than common; containing a moderate quantity of a very fluid, puriform, whitish, turbid liquid. Internal surface white, pale throughout; mucous membrane everywhere of its natural thickness and of good consistence, giving a strip of from ten to fifteen lines in its two extremities, rather less in the interval. No glands perceived.

Liver—of moderate size, much more easily broken than common. Bile in quite small quantity.

Spleen—of natural size, color, consistence.

Kidneys—natural. *Bladder* very small, containing a small quantity of a creamy fluid: injected at its posterior face internally; mucous membrane of its natural thickness and consistence. *Uterus* small. *Ovaries* rather large.

Thorax. Lungs: *left* free in its whole extent; light; of a bright red color externally, and yet more so internally, especially in its upper lobe; the lower is of a darker red, and its substance firmer, though neither hepatized nor spleenified: *right* equally free; has become smaller than left; upper lobe of a pale red, approaching orange color; lower resembling same lobe of left lung.

Pericardium natural, moist, not viscid to touch, containing $\frac{3}{4}$ i. or ii. of serous fluid. *Heart* of natural size, containing some coagula.

Neck. Larynx;—some spots on internal surface of epiglottis, color of onion-skin, as also in trachea two inches below ventricles; mucous membrane of this part of trachea posteriorly and laterally red, but of natural thickness and consistence. *Glands* at base of tongue very large but without any central points. *Par vagum* of natural size, color and consistence.

Head. No infiltration beneath the arachnoid; moderate injection of pia mater. Substance of brain not very firm, but not softened; cortical substance of an uniformly livid red, evidently a deeper color than natural; corpora striata of a less deep color, natural; in the white substance are several lilac marbled spots, upon some of which on incision are seen numerous points of blood. No serum in ventricles. Pons Varolii small, not very firm; medulla oblongata and cerebellum healthy.

Semilunar Ganglion greyish or whitish internally; rather large; one and a half lines in thickness at some points.

Spinal Marrow. Not examined.

CASE VII.

St. Charles, 4. . . . Female Ward.

Under care of M. Louis.

MAGUIOT, æt. 71, washerwoman, widow, entered April 14th, 10 A. M. Sick since last night (13th) at midnight. Nourishment insufficient; lives in room without a fire; for three weeks has had slight diarrhœa (two or three loose stools) at night only; rather more unwell for fifteen days, but has continued to work till last evening. During last night got no sleep, and at midnight, without any preceding chill, increase of diarrhœa and vomiting, but no colic; diarrhœa continues, and since entrance a little pain in abdomen; cramps very slight this morning before entrance, more severe since in upper and lower extremities; appetite was good until to-day, now gone; thirst urgent since debut; felt cold during night, which she attributed to constant rising to stool; no sensation of heat; urine continues; came to hospital on litter; could not walk down stairs. Limbs were cold on arrival; friction and warmth were applied, and half an hour since, when we first saw her, the hands, face and trunk were warm and moist; the nose covered with sweat.

April 14th, 6 P. M. Eyes hollow, encircled by a dark ring; eye-lids half open, motionless; face cool, slightly livid; lips violet; fore-arms cool, moist, clammy; lower extremities not moist nor cold, but less warm than usual; arms feel cold to her, as she thinks from exposure outside of bed-clothes; lies motionless in bed. Tongue violet, moist, cool; thirst urgent; no nausea after drinking; no pain at epigastrium; no colic; says pain in abdomen is like those in thighs (cramps); has alvine evacuations in bed, watery. Pulse 84, regular, very small, but easily counted; has urine as she says; respiration 32, rather high. No head-ache, nor feeling of heaviness in

head ; sight troubled and at times double ; hearing good ; no ringing in ears ; aphony ; cramps in upper extremities, which are not relieved by exposure of limbs to air.

The treatment is by accident not noted, or if noted, mislaid. It is, however, not of much importance, as the patient was not in a condition to be relieved by any treatment whatever, and died the next morning (15th), at 7.

Autopsy 10 A. M. 16th, 27 hours after death.

External appearances. Skeleton well formed ; slight emaciation ; limbs livid and blueish.

Abdomen. *Stomach* half larger than usual ; containing a considerable quantity of a clear greenish liquid, in which are suspended numerous flakes of grass-green mucus. Internal surface of an unequal red over whole posterior face, very deep red in part of great cul-de-sac, near cardia, where the color seems owing to a multitude of small points which are generally confluent ; redness much less deep on anterior face ; mucous membrane not granulated nor thickened at any point ; everywhere of its natural consistence, except on portion of posterior face corresponding to great cul-de-sac, where it is scarcely more consistent than mucus.

Small Intestines rather larger than natural ; distended throughout with gas, and containing a liquid which is of a reddish grey color above, and of a clear red below, somewhat fluid in five or six first feet, and much more so, like water, below ; in this liquid float numerous brownish flakes, resembling moss under water ; in it also are suspended myriads of very minute white bodies. Internal aspect like external, deep pink or light red. Mucous membrane pale, the pink color being owing to a universal injection of the subjacent cellular tissue ; it has its ordinary thickness and consistence, giving a strip of from six to ten lines in its whole extent. In the first four feet are seen a very few of Brunner's glands as large as millet-seed ; they are afterwards much more numerous and smaller (of the size of mustard-seed), except in three last feet, where they are even larger than in jejunum.

Peyer's glands very apparent in last half of intestine from their white color, which distinguishes them from the surrounding pink surface; scarcely thicker than the neighbouring parts. Mesenteric glands generally small, five or six only being of the size of a large bean and of a pink color, but good consistence.

Large Intestines somewhat larger than natural in first half and containing in this part a considerable quantity of a turbid reddish liquid, which is quite fluid; in the last quarter this liquid is of a deeper and more decided red. Mucous membrane white in cæcum, ascending and transverse colon; with a few red patches at intervals in two first, of a deep amaranth red in the last foot; this color is owing to an injection of both the mucous and the subjacent cellular tissues; mucous membrane yields a strip of eight to ten lines except in transverse colon, in the greater part of which it is but six or eight, and there the membrane is evidently thicker than natural, though white.

Liver moist externally; intensely red and much gorged with blood in its great lobe; much more friable than in its ordinary state, (27 hours after death). Bile abundant, of a dark-green color.

Spleen natural as to size, etc.

Kidneys natural; no liquid in infundibula.

Bladder of the size of a pear; sides in contact; internal surface covered with a thick, opaque, yellowish white liquid, which is not very fluid.

Uterus small; internal surface of a reddish violet; containing no liquid.

Thorax. Lungs. Left pleura healthy, without adhesions, slightly moist and somewhat viscid to touch; lung very light; emphysematous throughout; on posterior part of lower lobe is a bunch or group of vesicles very much dilated, quite superficial, covering an inch in extent. Right pleura same as left; right lung more voluminous, pink, everywhere emphysematous without any engorgement.

Pericardium healthy. *Heart* voluminous; increased

at least two thirds in size, especially at the expense of the left ventricle, whose cavity is rather diminished, and whose walls are an inch thick; aortic valves healthy, except a little induration at their adherent edge; contains a moderate quantity of liquid blood, in which are a few coagula not fibrinous. *Aorta* contains a considerable quantity of black liquid blood; internal surface natural.

Head. Great quantity of blood on external surface of dura mater, mostly from the rupture of the longitudinal sinus. Arachnoid very moist; considerable infiltration of serous fluid under it; pia mater considerably injected; cerebral veins quite distended; substance of brain very moist, of good consistence; cortical substance and corpora striata of natural colour; medullary substance presented some red points on its incised surface; $\frac{3}{4}$ i. or more of clear colorless serous fluid in each lateral ventricle. Cortical substance of cerebellum of a violet pink; other parts natural.

Semilunar Ganglion greyish externally; greyish and white internally; dense and firm as natural.

Par Vagus healthy.

Spinal Marrow not examined.

CASE VIII.

St. Charles, 11. Female Ward.

Under care of M. Louis.

HERVET, æt. 29, seamstress, is now nursing a child, and has been poorly nourished during winter; entered April 14th, 2 A. M. Sick since 13th; had had diarrhœa since the morning of that day, when at 4 P. M. great increase of diarrhœa, with vomiting of a bitter fluid mixed with the food she had eaten at dinner, and cramps; also pain in abdomen which she cannot well describe, but says it was not like an oppression; had no chill, but at 7 P. M. cold sweat about head; went to bed soon after attack; no

urine since; aphony since 8 P. M.; was very cold at entrance this morning (14th); no stool since, but vomiting continues bitter.

April 14th, 8½ A. M. Now, face violet, cold; eyes somewhat hollow, very moist; folds of skin of neck not very slowly effaced after pinching; hands and fore-arms cool; keeps arms out of bed, saying she would like to have them washed with cold water. Tongue violet, cool, with thin white coat; thirst urgent, prefers cold drinks; pain at epigastrium and at hypogastrium increased on pressure; says has had a kind of pain or rather a sensation of great feebleness at epigastrium ever since she has been nursing child, which was very different from present pain in the same region; no gurgling in intestines either spontaneously or by pressure; no stool since entrance. Pulse imperceptible; no sweat at present on forehead; no urine. Respiration, 30 high; no cough; no agitation, but says respiration is embarrassed. No head-ache, nor sensation of heaviness in head; ringing in ears since yesterday; sight good; giddiness on raising herself in bed; aphony incomplete; no cramps at present, but pain in limbs; says she should be well if it were not for the pains at epigastrium and hypogastrium and the inability to pass her urine.

30 Leeches to epigastrium. Lemonade for drink. ʒ iv. of simple enema, with ʒ ss of laudanum every two hours.

Friction of lower extremities every half hour.

April 14th, 6½ P. M. Face livid, cool; arms out of bed; hands and arms cold, clammy to the touch; says she does not feel cold; complains only of absence of urine, to which alone she attributes pain at hypogastrium. Tongue cold; thirst urgent; no vomiting; no stool. Pulse imperceptible; no urine; respiration a little accelerated and high. Sight slightly troubled; aphony by no means complete; no cramps.

30 leeches to hypogastrium. ʒ iv. of the flax-seed enema with ʒ ss. of laudanum every two hours. Friction every half hour. Lemonade for drink.

Died 15th, 2½ A. M. Autopsy 15th, 10 A. M. 7½ hours after death.

External appearances. Skeleton rather large, well-formed; face less cold than at last visit; abdomen warm; inner part of thighs somewhat livid; slight emaciation; museles rather pale but pretty firm; fatty tissue not abundant. In right mamma nothing remarkable; left rather large, very moist, of a violet lilac hue; giving on incision a liquid of the color, etc. of milk.

Abdomen. *Stomach* of moderate size, and contains a considerable quantity of a very fluid greyish, or yellowish liquid, in which are seen a few small flakes of mucus. Internal surface greyish and pale in small curvature; elsewhere generally whitish with slight pink tinge; in great cul-de-sac some patches dotted red. Mucous membrane generally a little injected in its own substance, slightly granulated in some portions of the large curvature, where a little mucus adheres to it, and of its natural thickness and consistence throughout.

Small Intestines moderately distended through whole extent, rather more so in last than in first half; of a white or whitish pink externally in the first five sixths, and of a more or less grey and dark green color below; containing in the first three feet a small quantity of greenish mucus which is not very viscid; afterwards an opaque whitish liquid, like milk, but rather darker and thicker, becoming clearer and more liquid near the end of the ileum, where it flows almost like water. Internal aspect like external; mucous membrane pale throughout, the pink tinge being owing to a slight injection of the subjacent cellular tissue; somewhat softened in three first feet, giving a strip of two to three lines only, while below its consistence is good, giving a strip of eight to twelve lines; not thickened in its first half, then slightly so for three feet and again natural to its lower extremity. Some of Brunner's glands are seen, but not very numerous, and in five last feet only, not so large as millet seed. Peyer's glands of a slightly lilac

white color, and from this color distinctly apparent; their surrounding tissue of its natural thickness.

Large Intestines. In first and last thirds rather larger than usual; containing an abundant greyish very fluid liquid, which is thicker and of a dirty reddish color in its last half, without any flakes of mucus, but in last part, three or four small morsels of a yellowish material in aspect resembling hardened fat. Internal surface pale or greyish in first half, with some points of a livid pink tinge; red, though not deeply nor equally so, in whole of last half. Mucous membrane and subjacent cellular tissue both injected at the red points; of natural thickness and consistence; beneath it in the whole extent of the intestine are seen the glands of Brunner, which are small but very numerous.

Liver of ordinary size; rather pale; somewhat soft but of natural cohesion; containing only a moderate quantity of blood. *Bile* of a dark green color, rather fluid, copious.

Spleen and *Kidneys* healthy. *Bladder* natural.

Uterus of ordinary size; rather soft; redder and more moist in its substance than usual; internally of a brownish red, not containing any blood.

Thorax. *Lungs:* *left* free; pleura healthy; lung of a bright red throughout; lower part of lower lobe of a somewhat brownish red and slightly heavy; healthy: *right* also free from adhesions; of the same size, weight and color as left, except the upper lobe which is much paler. *Heart* of moderate size, containing a quantity of black liquid blood with some amorphous coagula.

Head. Pretty strong adhesion of dura mater to cranium posteriorly. Pia mater quite injected; cerebral veins distended; no infiltration under the arachnoid; medullary substance of natural firmness, of a pinkish lilac in some spots, showing some red points on the incised surface of cerebrum and cerebellum.

Par Vagus—externally two or three very narrow longitudinal red lines in its whole extent in neck; these

not seen internally, where the tissue is perfectly white; of ordinary size and consistence. *Cervical Ganglia*; upper and middle of moderate size, quite pale, and of good consistence.

Semilunar Ganglion not noted.

Spinal Marrow not examined.

CASE IX.

St. Rosaire, 9. . . . Female Ward.

Under care of M. Louis.

A * * * *, chiffonnière, æt. 35, was well yesterday; says she was taken ill this morning (Apr. 2,) at 2 A. M. with colic and diarrhœa, which have continued to the present time; soon afterwards the cramps commenced and likewise continue, most severe in legs, especially in calves; began to vomit at 10 A. M. Entered hospital at 12 o'clock; has had warmth applied and has taken an opiated mixture and enema since entrance; previously she had drank nothing but water.

Apr. 2d, 3 P. M. Face slightly violet, lips very much so; nose cold; pupils not dilated; arms cold, livid. Tongue violet at its edges, somewhat cool, yellowish at centre; thirst intense; deglutition very rapid, drinking with great eagerness; some pain on pressure of abdomen which is slightly depressed; no vomiting since entrance, nor stool for some time past; complains much of a sensation of oppression at the epigastrium. Pulse 108, excessively feeble, scarcely perceptible; has passed urine within a short time. Respiration 40. Intellect clear; much vivacity in answers; voice almost extinct.

Continue opiated mixture. If cold stage become strongly marked, let her have $\frac{3}{4}$ ii. of alcohol with $\frac{3}{4}$ iv. of vehicle, to be taken in the course of three hours.

Died Apr. 3d, 10 A. M. after an agony of three hours. Autopsy Apr. 4th, 10 A. M. twenty-four hours after death.

External appearances. Limbs quite rigid; subject moderately fat; legs bluish; thighs and trunk less so.

Abdomen. *Stomach* a third larger than usual, distended; containing half a pint of a greenish liquid with green flakes, some of which are whitish and opaque. Mucous membrane of a yellowish white, with some spots of a livid red in the great cul-de-sac, and slightly pink elsewhere; finely granulated over the whole extent of the anterior face and slightly so posteriorly near the great curvature. Mucous membrane soft as mucus in the great cul-de-sac; yields a strip of two to four lines along the great curvature posteriorly, and five to six anteriorly; of good consistence in the small curvature, and every-where of its natural thickness, without any appearance of glands.

Small Intestine contains a greyish pink liquid in its first third and a yellowish mucus afterwards. Mucous membrane of a yellowish white, color of the skin, nowhere injected, or only very slightly so at some distant points; of its ordinary thickness and good consistence, yielding a strip of four to five lines. In the last two thirds are seen numerous isolated glands, as large as mustard-seed above and increasing in size towards the cœcum. Peyer's glands white, slightly prominent, natural.

Mesenteric Glands healthy.

Large Intestine at least three times as large as common, filled with white opaque fluid which is here and there of a somewhat lilac tinge. Mucous membrane of a violet red in almost the whole extent of the colon and sigmoid flexure; it is everywhere softened, being somewhat thicker than common in a part of the ascending colon, very much so in the transverse, not giving a strip of more than three lines at any spot, and in some places quite like mucus.

Liver perhaps rather larger than common; a little pale; very moist; of moderate consistence. *Gall-Bladder* distended with a moderate quantity of a greenish yellow liquid.

Spleen of its ordinary size, a little flaccid and pale, but natural.

Kidneys healthy.

Thorax. *Pericardium* not pitchy, without any serous fluid.

Heart of its ordinary size; right auricle contains a large quantity of blood, partly liquid, with some coagula which are not fibrinous; substance of organ is of moderate consistence.

Lungs. *Left* partially adherent to the pleura; small; a little violet at its base without engorgement; some greyish granulations in its summit. *Right* nowhere adherent; very light, and without any granulations at the summit.

Head. Slight infiltration of serous fluid under the arachnoid; brain moderately injected; corpora striata more deeply colored than usual, being of a livid pink; a spoonful of serous fluid in each ventricle.

Par Vagum and *Solar Plexus* healthy.

CASE X.

St. Charles, 9. . . . Female Ward.

Under care of M. Louis.

JULIE, æt. 34, sick since last evening (12th) 7 P. M. now 13 hours. Slight diarrhœa on the two preceding days; had one or two loose stools each day, but continued to work, though appetite was diminished. On 12th, 7 P. M. without any preceding chill, increase of diarrhœa, without severe colic; nausea; three or four vomitings and incessant stools; also cramps in lower extremities; feeling very feeble and being greatly oppressed in her respiration, she at once went to bed; aphony from the commencement; has passed urine; has been rather warm than cold, and sweat since in bed; matter vomited had no peculiar taste; sight good; no ringing in ears.

April 13th, 8 $\frac{1}{4}$ A. M. Has just lost $\frac{3}{4}$ vi. of blood by V. S. which flowed guttatum, and is followed by a slight decrease of the oppression. Eyes hollow; face livid, cold especially at its centre; lips violet; eyes of their usual brilliancy, but wanting expression; air of great prostration; drowsy; keeps arms out of bed, finding relief from it, and saying that face and body feel hotter than usual; this not perceived by observer; folds of the skin of neck very slowly effaced. Tongue white, cool, slightly livid at edges; thirst intense; desires cool drinks, and takes them without nausea or vomiting; abdomen sunken, no pain in any part of it, neither any sensation of heat there more than elsewhere; liquid stools. Pulse 120, regular, very feeble; urine. Respiration 24, rather high. No head-ache; intelligence perfect; senses good; has sensation of great fatigue and is disposed to sleep; cramps frequent in lower extremities, none in upper. Opposes the application of leeches with considerable obstinacy.

Lemonade. $\frac{3}{4}$ iv. of simple enema with $\frac{3}{4}$ ss. of laudanum every two hours. Frictions every half hour.

April 13th, 5 P. M. Finds herself better. Face very cold, pale, livid, or of a leaden white, cadaverous; eyelids motionless, half open; hands and fore-arms warm; on looking at the patient, one would suppose that the functions of life had ceased, so motionless are her features and so corpse-like her color. Pulse 100, very feeble, but easily counted. Respiration somewhat frequent and a little high; says it is easier than this morning.

Continue treatment, and take a spoonful of mixture, No. 2 ($\frac{3}{4}$ ss. of alcohol to $\frac{3}{4}$ iv. of vehicle) every two hours.

Died 14th, 5 A. M. Autopsy 14th, 4 P. M. 11 hours after death.

External appearances. Skeleton large, well-formed; subject moderately fat; lips still livid, as also inner part of thighs; this morning (10 A. M.) the face was decidedly less cold than at visit last evening; limbs quite rigid; muscles of natural color, not pitchy.

Abdomen. *Stomach* of moderate size, containing half a glass of a white ropy fluid, semi-transparent, resembling the white of eggs, in which are seen several flakes of a more opaque mucus. Internal surface of a slightly pink violet color in its cardiac half, and whitish or slightly greenish elsewhere. Along the great curvature, over an extent of about four inches in front and behind, but especially in front, are seen as many as fifty small round spots of half a line in diameter, where the mucous membrane seems to be removed as by a *punch*; the destruction of this membrane, however, is not complete, for on raising a flap by dissection, the same solution of continuity is not observed on its adherent surface, though it is very evident that the membrane is much thinner at these points; on incision through their centre it is also seen that the membrane is but partially destroyed. In the great cul-de-sac, on the anterior and posterior surfaces, and along the two curvatures, the membrane is of its ordinary thickness and consistence. Œsophagus is covered with its epithelium throughout, and upon its surface are seen several isolated glands.

Small Intestines—externally of a pinkish white in their whole extent; somewhat distended throughout by gas; containing in their first half a whitish liquid of a puriform appearance; below, the liquid is less opaque, thin as water and containing numerous flakes of grey mucus which is very frothy, filled by innumerable air-bubbles, the whole somewhat resembling the spawn of certain fish. Internal aspect same as external, a pale pink; mucous membrane itself when dissected from the subjacent cellular tissue is of a decided white, except in its two last feet, where it is somewhat red; sub-mucous cellular tissue is somewhat injected, giving rise to the external and internal pink color. Mucous membrane of its natural thickness and consistence, giving a strip of four to six lines in the jejunum and six to nine in the ileum. In the last half are seen several patches of Peyer's glands, slightly, but to touch sensibly thicker than surrounding

mucous membrane, a little more prominent in last four feet ; where also are seen a few of Brunner's glands, of the size of mustard-seed above, and two or three times as large below. Mesenteric glands generally larger than common ; especially those corresponding to the ileum, where they are slightly reddish, but of good consistence.

Large Intestines—in their first half rather larger than common ; containing a reddish or greyish red liquid of the consistence of thin pus, more abundant in first than in second half. Mucous membrane pale, except at some few red spots at intervals ; at intervals also several small prominences owing to slightly developed glands which adhere to the subjacent tissue, as is shown by a dissection and removal of the mucous membrane ; redness more marked in sigmoid flexure than elsewhere. Mucous membrane of ordinary thickness and consistence throughout.

Liver somewhat dry on its surface and a little viscid ; of ordinary size ; less red than usual internally ; otherwise not remarkable. *Gall-bladder* contains a very small quantity of a dark, green, viscid bile.

Spleen rather larger than ordinary ; natural.

Pancreas of a pinkish white externally ; natural size and consistence.

Kidneys of their ordinary color and consistence ; infundibula and pelves empty.

Bladder of the size of a large apple ; a little livid on its posterior surface internally ; containing a small quantity of a milky fluid, which may be scraped up from its mucous membrane by a scalpel.

Uterus one third larger than common ; parietes whitish, ten or twelve lines thick ; containing in its cavity a very small quantity of a red matter, of the consistence of mucus, under which the mucous membrane is more or less red, except towards the angles. *Ovaries* natural.

Thorax. Lungs : left, some cellular adhesions posteriorly ; no serum in pleura, which is natural ; lung heavier than usual ; lower lobe of a bright red in its whole substance

upper of a paler red, both containing more blood than natural and but little air: *right*, adherent to pleura universally; at apex vesicles extremely large, more than two and a half lines in diameter; rather heavier than natural; reddish and greyish in upper lobe, and of a deeper red in lower; containing even less air and same quantity of blood as left.

Pericardium healthy, moist, containing $\frac{3}{4}$ i. of limpid, orange-colored serous fluid. *Heart* of its ordinary size, containing a great quantity of black liquid blood, in which are several soft coagula, and one firm, white fibrinous coagulum in right ventricle; tissue of the heart firm; left ventricle a little thickened.

Larynx, *Epiglottis* and *Trachea* natural, except a slight lilac color of membranous portion of trachea.

Head. Numerous small drops of blood on external surface of dura mater. Cerebral veins greatly distended by blood. Pia mater universally but moderately injected; slight infiltration under the arachnoid; brain rather moist, of good consistence; cortical substance and corpora striata of deeper color than natural; medullary substance very slightly injected; rather more than $\frac{3}{4}$ i. of clear serous fluid in each of the lateral ventricles. Cerebellum same as cerebrum. Pons Varolii and medulla oblongata firm, greyish and the first a little violet.

Semilunar Ganglion being removed by error with the Pancreas, not examined. *Par vagum* natural. *Superior cervical Ganglion* slightly greyish, of its natural form, size and consistence.

Spiral marrow not examined.

CASE XI.

St. Charles, 10. . . . Female Ward.

Under care of M. Louis.

HELBARD, æt. 69, widow, entered April 16th 10 A. M. Well-nourished; lives in a dry room with a stove in it;

cough and dyspnœa at intervals for four years; hæmoptysis to a very considerable amount two years since; for last year or two palpitation, occasionally obliging her to rise in bed; legs never œdematous. Now sick since 12th; for a day or two before had head-ache, but no looseness of bowels; at debut, diarrhœa without colic; stools continue very frequent; was not cold; continued to take a little food and did not get to bed till this morning (16th); when for the first time she began to vomit, at first a bitter greenish fluid (bile), now a clear, not transparent liquid, in which float several masses of mucus, some few of which resemble the opaque mucus of Bronchitis; urine not suppressed; aphony since this morning; no cramps.

April 16th, 5¼ P. M. Eyes hollow, encircled by a dark ring; face rather livid, cool; lips violet; neck still cooler than face, moist; breast less warm than common; says hands are cold; they are quite cool to the touch; arms out of bed. Tongue moist, with a white coat except at edges, and rather less warm than natural; thirst urgent; has vomited three times since entrance; stools incessant. Pulse almost imperceptible, impossible to count at wrist, by heart 150, feeble, regular. Respiration 32, high, equal. Sight good; mind clear; tendency to dose, but easily roused.

Lemonade. 3iv. of flax-seed tea with 3i. of laudanum every two hours for enema. Friction every half hour.

Antispasmodic mixture with gr. iss of hydrochlorate of morphia. Sinapisms to lower extremities.

Apr. 17th, 7½ A. M. Took mixture without nausea or vomiting. Now, hands and fore-arms icy, colder to the touch than the iron bedstead she lies upon; face rather less cold than hands; lips violet. Thirst urgent, but she dares not or cannot take a spoonful of drink on account of the extreme dyspnœa. Pulse imperceptible; dyspnœa extreme; can scarcely speak. Complete aphony.

Sinapisms to thighs. Mixture with 3i. of alcohol and without any laudanum. Friction every half hour.

Died Apr. 17th, 2 P. M. Autopsy 18th, 10½ A. M. 20½ hours after death.

External appearances. Skeleton well-formed; limbs and face livid; coldness complete, though face and hands less cold than at last visit, and also less cold than leaden dissecting table; fatty tissue abundant.

Abdomen. *Stomach* larger by one half than usual; contains a fluid of a somewhat livid red color without any mixture of mucus. Internal surface generally of a livid red color with a light greyish patch five inches long and two broad on the posterior face, in the direction of the large curvature, where the mucous membrane is softened, giving a strip of two to four lines only; elsewhere this membrane is of its natural thickness and consistence. The whole circumference of the pyloric portion granulated for three inches from the pylorus, where it is of a deeper and more uniform pink than elsewhere.

Small Intestines externally of a rather deep lake-red color in their whole extent, containing a material of the same color resembling mucus, and some small masses like broken boiled rice. Internal aspect like the external; acid odor exhaling from the internal surface. Mucous membrane not injected, though it has a slight livid pink tinge, as if from imbibition; mucus somewhat adherent to it in last quarter part; everywhere of its natural thickness, and giving a strip of three to five lines, except in the last three or four feet, where it is only one to three. Brunner's glands rare and very slightly developed in last half of intestine only. Peyer's glands pale, natural.—Fat abundant in cellular tissue of pelvis.—Mesenteric glands very small, discovered with difficulty.

Large Intestines rather large in their first half, containing a livid red turbid liquid throughout their whole extent. Internal aspect the same as that of contents, of a deep red color in their whole extent, like the lees of wine, except in last six inches, where it is greyish and red at a few points only. Mucous membrane not in-

jected, though of a feeble red color, which is much more marked in subjacent cellular tissue ; of its natural thickness, less adherent to subjacent tissue than usual, giving a strip of ten to twelve lines. No glands seen.

Liver small, rather pale, containing little blood.

Gall-bladder rather flaccid, containing a quantity of dark green bile.

Spleen very small ; natural.

Kidneys slightly livid ; of good consistence.

Bladder small ; nothing peculiar.

Uterus small ; substance and internal surface of a slightly livid red color.

Thorax. Lungs. Left : some cellular adhesions ; light, emphysematous in upper lobe ; at summit are a few hard, small, greyish, bodies, seeming stony ; lower lobe is less light and contains more blood than upper. *Right* : uniformly adherent ; upper lobe emphysematous ; apex indurated in the thickness of three or four lines, where some of the bronchia are very much dilated and the tissue greyish, hard, semi-transparent, with a few greyish granulations also semi-transparent, of three fourths to one and a half lines in thickness.

Pericardium and *Heart* natural ; heart perhaps a little large, flaccid, containing a liquid blood without coagula.

Head opened on the same day at 4 P. M. Moderate quantity of blood on external surface of dura mater. Considerable and universal infiltration under arachnoid ; pia mater greatly injected ; cerebral veins much distended. Substance of brain quite moist and of its ordinary consistence ; cortical substance rather more pink than common ; corpora striata yet more so ; medullary substance somewhat injected, with slight lilac tinge through whole extent ; not more than $\frac{3}{4}$ ss. of serous fluid in each lateral ventricle. *Pons Varolii* and *medulla oblongata* of their natural size, color and consistence. *Cerebellum* same as cerebrum.

Par Vagus natural color, thickness and consistence.

Superior cervical Ganglion pale, rather small, natural.

Semilunar Ganglion of a livid red color externally ; greyish internally ; very firm ; of moderate size ; natural.
Spinal marrow not examined.

CASE XII.

St. Rosaire, 24. . . . Female Ward.

Under care of M. Andral.

LEBEQUE, æt. 53, leather-dresser, often out of work during winter, and leads a miserable life ; for six months past subject to diarrhœa ; for the few last days, loss of appetite, head-ache and diarrhœa ; still not very unwell and worked as usual till April 5th, when the diarrhœa suddenly increased very much, continuing through the whole night and accompanied with colic ; vomiting, commenced in evening, of a yellow but not bitter liquid, repeated every time she drank and continuing also the whole night. Cramps this morning (6th), most violent in lower extremities, but existing likewise in upper.

April 6th, 9½ A. M. Now, face livid, lips violet ; eyes sunken, encircled by a dark ring ; nose and cheeks cold ; hands and feet of a deep violet and cold ; says she feels cold. Tongue moist, violet, cool, with thin white coat ; no bad taste in mouth ; thirst urgent since yesterday morning ; pain in the lower part of abdomen ; has just vomited. Pulse 96, thread-like ; no sweat ; no urine. Respiration 23, very costal. Voice hoarse, but not complete aphony.

Lemonade with Syrup of gum arabic. Half spoonful of the following every half hour.

R. Aq. Ment. Vir. ℥ iii.

Alcohol. ℥ i.

Quinin. Sulph. gr. xx.

Camphor. gr. xx.

Syr. Aurant. Cort. ℥ i. M.

Sinapism to abdomen, to be left on one hour.

Enema of starch to be repeated once, in each of which the following :

R. Quinin. Sulph. gr. xv.

Camphor. 3 ss.

M.

Friction of limbs with essence of turpentine.

April 6th, 6½ P. M. Dosing; air calm; answers clearly and easily; face and hands still cold; extremities violet. Tongue cold, moist, not red, but with white coat; thirst urgent; has twice vomited a green liquid; says she suffers only in abdomen; pain at epigastrium and hypogastrium on pressure; two or three small stools. Pulse scarcely perceptible; no urine, though desire to pass it.

Continue treatment.

April 7th, 7½ A. M. Face cold. Tongue cold and pale; little pain in abdomen; some slight vomiting in night; one or two stools. No pulse at wrist; no urine, though desire to pass it continues. No cramps or only very slight.

Take for drink the following :

Madeira and Malaga wine, of each 3 iv.

April 7th, 7 P. M. has taken half of wine. Face livid; nose cold; cheeks and skin generally cool. Tongue white, moist; pain at epigastrium; no vomiting; some stools. No pulse at wrist; no urine, though desire to pass it continues; pain in hypogastrium. Cramps.

Continue wine.

Died April 8th, very early A. M.

CASE XIII.

St. Athanase, 25. . . . Male Ward.

Under care of M. Andral.

MARTIN, æt. 47, wool-comber, entered April 6th, 8 P. M. Was taken ill on 6th, 8 A. M. with abundant diarrhœa, not preceded by any chill; cramps commenced at 4 P. M. and vomiting two hours after, becoming more severe during the night.

April 7th, 6½ A. M. Now, eyes hollow and encircled by a dark ring; face livid and cold; lips violet; great anxiety and agitation and constant complaints; hands violet, cold. Tongue moist, violet, cool, with whitish coat in middle; thirst urgent; complains of acute pain in right side of epigastrium; vomiting frequent and very painful; stools abundant. No pulse at wrist, 96 at carotids. Respiration 28, costal. No urine. Aphony.

Take for drink the following:

Malaga and Madeira wine, of each $\frac{3}{4}$ iv. Lemonade. Sinapism to abdomen.

April 7th, 6 P. M. Has taken a good half of the wine, but complains that it burns him and refuses to finish it. Great anxiety; hands cold and violet. Tongue white and moist; hiccoughs each time accompanied with a cry of suffering; complains of burning at stomach, of dyspnœa and an insupportable sense of oppression at lower part of chest and in whole abdomen; vomiting of a watery liquid with brownish flakes; diarrhœa continues; pulse very small; no urine. Cramps severe during day.

Lemonade. Thirty leeches to epigastrium.

April 8th, 7 A. M. Face and hands cold; hands very violet; great anxiety and constant complaint of "pain at stomach." Tongue dry, red with yellow coat; pain in abdomen; no vomiting; tenesmus, but no stool. Pulse imperceptible at wrist, 88 at carotids, very feeble. Respiration high, not greatly accelerated; no urine. Aphony; cramps continue.

Thirty leeches below umbilicus. Lemonade. Cataplasm to abdomen after the leeches. Enema of decoction of poppy-heads, to be repeated once.

Just after the above note, the patient had a small, brownish red, liquid stool.

April 8th, 6 P. M. Leeches were applied at 9 A. M. and bled freely. Lying on right side with knees drawn up; eyes half closed, much sunken and encircled with a deep black ring; constant groaning and expression of suffering; face cold, of a yellowish hue; lips violet; hands

cold, violet; breast warm. Great thirst; complains constantly and urgently of pain in abdomen; no vomiting; constant tenesmus and frequent small reddish liquid stools. No pulse at wrists; no urine. Slight cramps.

Warm bath this evening.

Got bath and died soon after, at 9 P. M. 8th of April.

Autopsy 9 A. M. Apr. 9th. 12 hours after death.

External appearances. Skeleton large; extremities very violet; limbs very rigid; muscles large, of a dark red color.

Abdomen. *Peritoneum* hardly moist, viscid to the touch; omentum much injected; inferior vena cava and vena porta distended with black blood. *Stomach.* *Œsophagus*—internal surface white, natural. Stomach contracted in its pyloric portion, splenic slightly distended; contains a very dark green liquid, with very little mucus lining its internal surface. Internal surface generally of a pink color and covered almost everywhere by numerous folds; those in the splenic portion of the organ are of a somewhat livid red color; on and between them are seen several little red masses like mucus mixed with blood; mucous membrane along the great curvature is finely injected, but is over the whole organ of good consistence and its ordinary thickness. (This stomach, especially in its splenic portion, is regarded by M. Andral as inflamed.)

Small Intestines—externally much injected, florid; this injection is quite fine; contain in the upper part a yellow liquid, which in the end of the jejunum is mixed with little brownish red masses, resembling small coagula of blood; in the ileum red liquid with similar little masses; this liquid becomes very abundant in the last foot, and is of the color of strong French chocolate. Valves of jejunum red, with venous arborisation in the intervals; this redness is less vivid towards the end of the jejunum, but again becomes more so at the commencement of the ileum, and in some parts of this intestine is observed in points or dots. Indeed, in the ten last feet of the small intestine the mucous membrane is

very finely injected, of a very bright red color, with very few intervals of white, and so softened that it is raised by the scalpel in the form of a reddish pulp. A few isolated glands of Brunner are seen at its extremity. Numerous patches of Peyer's glands, several of which are very large, generally much more red and swollen than common, with bright injection of the mucous membrane surrounding them. One of them was forty lines in length by six in breadth, one third of whose surface was deeply ulcerated.

Large Intestines contain in their upper half a great quantity of a chocolate-colored, brownish red liquid. Numerous violet red patches on internal surface of cæcum and ascending colon, upon which the mucous membrane is softened. Transverse colon generally of a livid color on its internal surface, which towards its end becomes nearly black; this color seems owing to an infiltration of blood into its tissue, which blood is easily expressed. Upper part of rectum white; some red patches on lower. Odor of the large intestine very unpleasant, not fœcal, nor exactly gangrenous.

Liver—red externally and internally, with one quite light yellow spot of the size of a horse-chesnut; of ordinary consistence; bile very blackish green.

Spleen—four inches ten lines long, two inches four lines broad; of a pale red color and good consistence.

Kidneys—both red, containing each a little white matter in their pelves.

Bladder contracted, and containing about 3 i. of turbid urine; parietes eight lines in thickness.

Thorax. Larynx empty and white. Lungs anteriorly pale, dry; posteriorly engorged; no tubercles observed.

Heart. Half an ounce of serum in pericardium. Concentric hypertrophy of left ventricle; substance of a deep red color; small white coagulum in right auricle. Heart, aorta and venæ cavæ filled with black curdled blood; their internal surfaces all pale, healthy; jugular veins and those of extremities likewise full of a liquid blood.

Head. Very little fat in orbits behind and about ball of eye. Veins on periphery of brain gorged with blood; membranes otherwise natural; substance of brain considerably injected, as shown by the red points on incised surface; very little serous fluid in the ventricles.

Great sympathetic nerve followed from its origin to the pelvis; natural. *Semilunar Ganglion* white and of its natural consistence. *Par Vagus* in all its branches healthy. *Spinal marrow* not examined.

CASE XIV.

St. Rosaire, 23. . . . Female Ward.

Under care of M. Andral.

VIEGE, æt. 36, seamstress, entered April 11th A. M. Sick since 9th, 10 P. M.; was previously well, eating and working as usual during day; diarrhœa and vomiting; cramps an hour after; these symptoms have continued; says at least 30 stools on 10th.

April 11th, 8 A. M. Now, features fixed; eyes much sunken and encircled by a dark ring; expression of very great prostration; face pale, livid; cheeks and lips cold, as also hands and feet; trunk however warm; intellect and memory perfect. Tongue pale and cool; thirst; vomits after drinking; pain over whole abdomen, but especially acute at epigastrium. Pulse 120, small; says has passed urine. Respiration 28, costal. Aphony complete. The excessive exhaustion is the most marked circumstance at present.

Sinapism to abdomen, which is first to be wet with essence of turpentine. Friction with tr. cantharid.

April 12th, 8 A. M. Tongue covered with false membrane; no vomiting; very acute pain in abdomen; several stools; no pulse at wrist; hands cool.

Sinapism to abdomen.

Died 12th, 2 P. M. Autopsy 13th, 9 A. M. nineteen hours after death.

External appearances. Skeleton of moderate size; not very fat; surface generally pale with slight lividity of hands only; considerable rigidity of limbs; muscles of a pale red, rather soft.

Abdomen. *Vena cava* distended with blood; *vena porta* contains very little. *Biliary ducts* contain very little bile.

Stomach contracted; contains a small quantity of a greenish mucus which lines its internal surface. Internal surface white with slight reddish tinge in a few spots; mucous membrane of good consistence and natural thickness.

Small Intestines. A few slight adhesions between the external surfaces of two or three folds, which when separated were seen in the form of delicate albuminous flakes, attached at one end to the serous membrane; very bright red fine injection of the sub-serous cellular tissue over whole of the small intestines. Three small intussusceptions. The intestines contain above a yellowish liquid with much mucus; in lower third a pale red liquid, in which are suspended numerous small white masses in form of filaments; at the very lowest part the mucous membrane is covered with a uniform coat of these white filaments. Numerous valvules at commencement of jejunum of a vividly red color, between which the mucous membrane is sometimes red, and sometimes, especially towards its lower end, pale. Whole mucous membrane of ileum of a bright red color, finely granulated and softened; in many points it is covered by small white half-solid flakes, which adhere strongly like false membrane to its valvules. Only three patches of Peyer's glands seen; two of which, twenty lines in length, are ulcerated through their whole extent. No follicles of Brunner seen.

Large Intestines, contain a great quantity of a light greyish red liquid of the consistence of pus; whole mucous membrane covered by a puriform mucus. Internal surface of cœcum and ascending colon of a dark red color,

which becomes brighter in the transverse, disappearing at its end, and re-appearing to the highest degree in the descending colon and rectum; mucous membrane much softened in its whole extent, and exhaling a very fœtid odor.

Liver red externally and internally; of good consistence.

Gall-bladder distended by a very dark-colored bile.

Spleen, five inches long, two broad, one half thick; red internally; of good consistence.

Kidneys healthy; no liquid in infundibula.

Bladder small, contracted, containing none of usual white material.

Uterus natural. *Ovaries*—slight effusion of blood into the right, and a serous cyst of the size of a small orange in the left.

Thorax. Œsophagus, Larynx, both natural.

Lungs;—very small tuberculous mass at summit of left lung, and two or three other small masses at summit of lower lobe of right, in both surrounded by a pale and crepitant tissue; posteriorly both lungs were somewhat engorged.

Heart. Pericardium contains $\frac{3}{4}$ i. of reddish serum; appearance of concentric hypertrophy of left ventricle; tissue of heart of a pale red, firm consistence; one soft, white, infiltrated coagulum in right auricle; liquid blood in small quantity in the other cavities; a second coagulum in the left auricle; the aorta contains a black liquid blood with a few very small white coagula—its internal surface is white.

Head. Veins of dura mater moderately full. Considerable injection of cerebral substance; more red points on incised surface than usual; $\frac{3}{4}$ ss of clear serous fluid in each of the lateral ventricles. Pineal gland large, containing a little gravel. Other parts of the brain healthy.

Semilunar Ganglion and its dependencies white, natural. *Par vagum* natural.

CASE XV.

St. Rosaire, 20. . . . Female Ward.

Under care of M. Andral.

MARECHAL, æt. 65, chiffonière; entered April 4th, 4½ P. M. Says she is insufficiently nourished, but always in good health. Was taken on 1st at noon with severe diarrhœa, unaccompanied by either colic or vomiting; on 4th vomiting and cramps, when for the first time she went to bed.

April 5th 9½ A. M. Now, air of anxiety, prostration, tendency to fixedness of features, mouth open; eyes encircled by a dark ring and somewhat hollow; pupils natural, no injection of conjunctivæ; eyes motionless and constantly open, though from time to time upper eyelid descends three-fourths over them, yet she says she has no disposition to sleep; face livid, lips violet; nose, lips and cheeks cold. Tongue slightly violet, cool, moist, smooth, without any coat; thirst urgent; nausea; says she has done nothing but vomit all night a watery fluid, most of which she thinks was the fluid she had drank; constant stools since yesterday; pain about and below umbilicus. Pulse still perceptible at wrist, but thread-like, 92; feet and hands cold; hands violet and icy, though superficial veins fully marked and distended with blood; whole skin cold and covered with a clammy moisture; says she has sweat very copiously for the two last days. Respiration 32, very costal; says she has dyspnœa but does not feel cold. Very little, if any urine.

For drink, infusion of lime-flowers sweetened with syrup of gum arabic. Sweetened lemonade.

R. Mistur. gum arab. ʒ iv.

Quinin. Sulph. gr. xx.

Æther. Sulphur. gtts. xx. M.

One spoonful every hour.

Plaster of ammoniacum to abdomen. Sinapisms to extremities. Friction with Tr. Cantharid.

April 5th, 7 P. M. Has taken only three fourths of mixture. Face cold; hands icy and clammy. Tongue red and dry; watery vomiting, at bottom of which are numerous small white flakes; no stool. Pulse thread-like, 100. Respiration 24, very costal.

Sinapisms to feet and legs. Omit mixture.

April 6th, 9½ A. M. Eyes less hollow, with more natural expression; skin of face cold; hands violet. Tongue very dry, like parchment; thirst urgent; abdomen somewhat painful; no vomiting; one stool. Pulse very small but still perceptible, 112. Does not feel cold. Respiration 20, costal. Some cramps not very severe during night.

Drinks as yesterday. Sinapism to abdomen for one hour. Enema with the addition of the following, to be repeated once.

R Camphoræ.	3 i.	
Alcohol.	3 i.	
Quinin. Sulph.	gr. xx.	M.

Friction with Tr. Cantharid.

April 6th, 6 P. M. has just died.

Autopsy 7th, at 9½ A. M. 15½ hours after death.

External appearances. Rigidity of limbs considerable.

Abdomen. Vena cava filled with a liquid black blood.

Stomach. Pharynx and œsophagus healthy—a few follicles seen in the last. Stomach contains a green porraceous liquid, in which are seen numerous flakes of white mucus. General redness of mucous membrane of whole stomach without any softening of it; the redness is formed by numerous fine points, or dots in the great cul-de-sac; it is quite vivid, but the consistence is natural; on the posterior surface are several folds; also, in the whole splenic portion are myriads of little red points, each of which is formed by a network of very delicate vessels; the mucous membrane slightly granulated along the great curvature. (M. Andral does not hesitate to consider this an inflamed mucous membrane.)

Small Intestines contain a yellow material above, and

lower alternately yellow and green ; this material is not very abundant, does not fill the whole calibre of the intestine, leaving it empty and dry in some parts ; it is generally of the consistence of clear broth, the green portion being always more solid than the yellow. Duodenum and valvules of jejunum of a vivid red color, which is more strongly marked inferiorly ; the end of the jejunum is of a pale pinkish color, and towards the ileum the redness recommences, but in the last six feet the mucous membrane is pale ; beneath the mucous membrane are seen numerous veins filled with blood. Five patches of Peyer's glands only were observed, and of the following dimensions : 1st, ten lines in length by two in breadth ; 2d, 8—1 ; 3d, 12—3 ; 4th, 9—2 ; 5th, 12—3 ; all white. Two or three follicles of Brunner were seen.

Large Intestines contain a liquid of a reddish brown color and without any fœcal odor, which is wanting in the transverse colon only. Internal surface of cœcum and ascending colon is of a very strongly marked red ; towards the end of the cœcum are five or six oblong elevations, six or eight lines long and three or four broad, of a dirty grey color and somewhat gangrenous odor, reduced to a mere pulp on rubbing them with the finger, greatly resembling sloughs in appearance. Numerous red folds in the transverse colon and continuing into the sigmoid flexure. Internal surface of rectum is of a livid red ; from it is pressed a reddish fluid.

Liver—of a pale red color and ordinary consistence ; does not grease scalpel. Gall-bladder distended with a very dark green bile.

Spleen—three and a half inches long, two and a half broad ; violet red color and of good consistence.

Kidneys—contain an abundant white liquid in their infundibula—tissue natural.

Bladder—contains a white puriform liquid, not pus, about a tea-spoonful in quantity ; internal surface violet.

Uterus—internal surface red, and containing a red fluid.

Thorax. Lungs crepitant, slightly engorged behind, dry in front. *Larynx* natural. *Heart* distended with a quantity of curdled black blood without any coagula; internal surface white; tissue brownish red, of natural consistence.

Aorta contains a liquid black blood; internal surface pale, white.

Par Vagum and great sympathetic of neck healthy. Other parts of the nervous system not examined.

CASE XVI.

St. Athanase, 28. . . . Male Ward.

Under care of M. Aodral.

BREBON, æt. 69, street-paver, entered April 2d. at 2 P. M. March 30th, diarrhœa; 31st, vomiting; April 1st, cramps added to two preceding symptoms, which still continued.

April 2d, 6 P. M. face rather yellow than violet; eyes hollow, encircled by a dark ring; skin cold; tongue livid; constant thirst; vomits a green transparent fluid with porraceous masses; pain at epigastrium; no urine since last evening; aphony.

Dry friction. Ptisan of mint and lime-flowers. Spoonful of mixture, composed of 3 iv. of vehicle with 3 iii. of laudanum, every hour.

3d, 8 A. M. disposed to sleep, but has not slept during night; eyes open, haggard; nose and cheeks cold. Tongue red, viscid, dry; thirst constant; pain less at epigastrium; frequent vomitings during night, as yesterday; pain in the hypogastrium; three stools like water. Pulse 76, small; hands and feet cold; respiration 20; no urine; aphony.

Solution of the syrup of gum. Cataplasm with 3 i. of Sydenham's laudanum to abdomen. Sinapisms to legs.

3d, 6 P. M. much the same; no urine, though has desire

to pass it; on introducing catheter no urine was found in the bladder.

Died at 1 A. M. April 4th. Autopsy at 10 A. M. same day, 9 hours after death.

External appearances—Limbs very rigid; surface of body pale without any livid spots; no emaciation; muscles very red and firm, not pitchy.

Abdomen.—Peritoneum dry, veins of large omentum distended with black blood, but its folds injected with a bright red; external surface of intestines colored by numerous injected veins; mesenteric veins likewise distended with black blood.

Stomach—contains a small quantity of a green fluid with white masses. On its *posterior face* the mucous membrane is covered by an adhesive material, partly green, partly white, like mucus; beneath this, the membrane is of an uniform bright red color without any interval of white; this color is in the mucous membrane itself, as is shown by a dissection of it, exists equally upon its adherent surface and is owing to the injection of a very fine net-work of capillary vessels which are seen in every part of it; beneath the mucous membrane in this part are seen large veins filled with black blood; the membrane is here of its natural consistence, being raised in large strips without breaking; its thickness seems rather greater than natural; no glands visible. M. Andral regarded this as a state of high inflammation, saying that he had never before witnessed such a degree of redness in the gastric mucous membrane, of persons affected either with cholera or with any other disease. *Anterior face*, covered by a similar mucus as the posterior, beneath which the mucous membrane is white and of its natural consistence and thickness. Along the large curvature and in the extent of four fingers in breadth from the pylorus, the mucous membrane is again red, though less bright and less marked than on the posterior face; the color here has the same seat as that before described.

Small Intestines. Intussusception of 22 lines in length

about the middle of this intestine ; duodenum and two first feet of jejunum contain a liquid of the color of a watery mixture of dark brick-dust ; somewhat lower the liquid is yellow, frothy and not very abundant ; still lower mixed with numerous white and green masses ; towards the end of the intestine this green matter was found to be more abundant, at last existing alone of a solid form, and resembling exactly, both in color and consistence, boiled and chopped spinage (dark grass green) ; finally, the last half foot of the ileum contains a small quantity of a dark red, pitchy blood, which is not found in any other part of the intestine, and exists here alone, unaccompanied by any other material, either liquid or solid.

Internal surface of small intestine is generally of a pinkish tinge, decidedly more pink than natural ; this color changes at intervals into a more intense red, but the points at which this last exists are not very numerous ; valvules of duodenum red, as also those of jejunum, though less so ; for half a foot above the cœcal valve are several small patches of a livid red, which seem owing to an infiltration of blood into the tissue ; elsewhere in whole extent of intestine the consistence of the mucous membrane is natural. Not a single follicle of Brunner was seen in the whole extent of the organ, and only three patches of Peyer's glands, which were neither prominent, nor unusually developed, nor surrounded by any peculiar redness of the neighbouring tissues, and were recognized only by the valvules at the spot where they exist.

Large Intestines. *Cæcum* filled with a reddish grey matter, which is thick or pultaceous, and has a semi-gangrenous odor. The same is found in the whole extent of the *colon*, mixed with a viscid green material. Numerous folds on internal surface of *cæcum*, which continue likewise into *colon* ; several red patches as large as a quarter of a dollar, owing to an infiltration of blood into the sub-mucous tissue ; in transverse colon, similar patches, oblong ; mucous membrane of the *rectum* of an intense red color.

Liver. Nine and a half inches long, five and a half thick; externally and internally of rather a pale red color; not much engorged with blood; of natural consistence; in its left extremity is a large fibrous cyst, filled with hydatids. Bile of a dark green color.

Spleen. Three and a half inches long, two broad; wrinkled on its surface; internally of a light red color and of natural consistence.

Kidneys—of a violet tinge externally; internally the tissue is red and engorged; several infundibula filled with a white cream-like matter.

Bladder—very small, contracted, containing a very little dirty grey liquid; numerous folds on its internal surface.

Thorax. Pleura not dry except where it overlaps pericardium—there the two contiguous surfaces are dry: old, but not very firm adhesions of both lungs; lungs pale and crepitant in front, and engorged behind. Pericardium externally dry, internally moist: heart contains a quantity of black curdled blood without any coagula; internal surface of the heart pale; tissue firm. Aorta contains black curdled blood; its internal surface is pale.

Head. Veins blueish over hemispheres of brain; some effusion of serum under arachnoid, but not very unusual in quantity; surface of brain pale; consistence natural; lateral ventricles, pineal gland, valve of Vieussens, fourth ventricle, corpora quadrigemina, medulla oblongata, pons Varolii, fifth pair of nerves, cerebellum, all examined and healthy; nerves of upper and lower extremities, dissected from their origins to hands and feet, everywhere healthy both in neurilemma and medullary substance as to color, consistence and thickness.

Spinal Marrow—in whole extent both membranes and substance healthy as to color, thickness and consistence.

Solar plexus and *Semilunar Ganglia*, *Par Vagum* at its origin and through its whole extent in pulmonary, cardiac and œsophageal plexuses all examined with care, and no appreciable lesion discovered.

CASE XVII.

St. Athanase, 26. . . . Male Ward.

Under care of M. Andral.

DAILY, æt. 49, slaterer, entered April 2d; says he leads a regular life, without excesses. On morning of April 1st, was taken with colic, which became violent and was soon accompanied with a watery diarrhœa and was followed by vomiting and cramps.

Apr. 2d, 9½ A. M. Face livid, eyes hollow, encircled by a dark ring; skin cold; radial artery scarcely perceptible; no urine since yesterday morning; aphony.

℞ Infus. Tiliæ et Menth. a. a. ʒiii.

Tr. Opii. ʒiii.

Syr. Simpl. ʒi. M.

One spoonful every hour.

Dry friction.

6 P. M. patient asleep; when awakened, says he feels better; pulse at wrist thread-like; limbs a little warmed; some pain in abdomen on pressure; aphony continues.

Same potion without the opium, and with fifteen drops of Æther.

April 3d, 8 A. M. manner calm; eyes encircled by a dark ring; pupils natural; on raising the eyelids they fall as in a man sleeping; forehead, cheeks, nose cold; skin in general slightly violet; hands, limbs, trunk warm; tongue moist and white; thirst continues; pain in epigastrium increased on pressure; rest of abdomen less sensible; no nausea nor vomiting, stools constant and involuntary; pulse excessively small, 88; respiration 28, costal; no urine; headache; aphony continues; cramps less severe and less frequent.

Lemonade sweetened with Syr. of Gum.

℞ Mist. Gum Arab. ʒiv.

Quinin. Sulph. gr. xv.

Æther. Sulphuric gtts. xv. M.

One spoonful every two hours.

Two sinapisms to the thighs. Friction of the limbs with Ammoniacal liniment.

April 3d, 6 P. M. Has taken only two spoonfuls of the mixture. Face livid, cold; trunk warm; pain at epigastrium; no vomiting; stools watery, red. Pulse small. Respiration 28. Great drowsiness.

Continue drinks and mixture.

April 4th, 8 A. M. Face livid, cold; skin cool, somewhat violet; tongue cold, violet, somewhat clammy; pain at epigastrium; no vomiting; stools of a dark brownish red color, not burning in their passage; pulse imperceptible at wrist, 84 by carotid; respiration 32, costal; no urine. Disposition to coma.

Lemonade.

R. Mist. Gum Arab.	3 iv.	
Ammon. Acetat.	3 i.	
Quinin. Sulph.	gr. xv.	
Æther. Sulphur.	gtts. xx.	
Camphor.	gr. xx.	M.

Take one spoonful every hour.

Friction of limbs with Tr. Canthar.

Died 11 P. M. April 4th.

Autopsy 11 A. M. Apr. 5th,—12 hours after death.

External appearances. Limbs very rigid.

Abdomen. Peritoneum not dry. Intestines quite distended with gas. Vena cava and porta filled with a black liquid blood, in which are seen also a few coagula, not fibrinous.

Stomach—rather large—containing a brown transparent fluid. On the great curvature is a large patch, three inches in length and the same in breadth, of a reddish brown color; this is covered by a brownish red liquid, beneath which the mucous membrane is impregnated with a similar liquid in its whole substance, quite resembling that vomited by certain subjects affected with cancer of the stomach. Where this liquid exists in the membrane, this is very friable and cannot be raised in strips from the subjacent tissue. In the great cul-de-sac the mucous membrane is of a pinkish hue, and affords a

very slight strip only. On the anterior face, it is very soft and semi-fluid, which circumstance seems to depend upon an intimate combination of a reddish mucosity with its tissue. Two finger's breadth from the pylorus are several small spots of a bright red color, occasioned by a fine capillary injection. Elsewhere the mucous membrane is white and of good consistence.

Small Intestine. In the duodenum and very commencement of the jejunum is a light yellow liquid; this ceases half a foot from the end of the duodenum, and in its stead there is found a reddish serous fluid, which is not very abundant; somewhat lower this matter has more the aspect of blood; lower still it is much more fluid, not viscid, and has the color of the lees of red wine; in the two last feet this fluid resembles exactly serum charged with the coloring matter of the blood. Three patches only of Peyer's glands were seen, of the following dimensions: 1st, with a small superficial ulceration, nine lines in length by four in breadth; 2d, 3—3; 3d, 22—3. Internal surface of this intestine pink in its whole extent. At intervals several small, round, old ulcers, black at their bases, like those seen in tuberculous subjects. In the last six feet, the follicles of Brunner were numerous and quite developed.

Large Intestine—filled with a red liquid, resembling that of the small intestines, holding in suspension some small grey masses which seemed like a loosely coagulated fibrine. Internal surface of cœcum and ascending colon of a livid red color: in the cœcum are several small old ulcers, and in both are seen several of Brunner's glands considerably developed. Mucous membrane of rectum of a livid red color and swollen.

Liver—nine and a half inches long, five broad; externally livid, pale; internally greasing the scalpel; consistence natural. Bile excessively viscid and of very dark green color.

Spleen—four inches long, two inches and nine lines broad. Tissue of a pale pinkish color and of ordinary consistence.

Kidneys—considerably engorged with blood; whitish grey matter in infundibula.

Bladder, contracted, containing a little dirty greyish liquid, not so thick as that usually found, but without any urinous odor.

Thorax. Pericardium moist. Heart large; concentric hypertrophy of the left ventricle; some coagula in right auricle, liquid blood in left; left ventricle empty. Aorta contains black liquid blood; its internal surface white.

Lungs. Cellular adhesions on left side; *left* lung contains numerous tubercles and a tubercular cavity of considerable size. *Right* lung contains a great number of less advanced tubercles.

Head. Veins of membranes gorged with blood. Medullary substance of the brain much congested, as shown by the bloody points on incised surface; a few drops only of serum in the ventricles; otherwise nothing remarkable; origins of the nerves healthy.

Ganglia of the sympathetic nerve healthy.

CASE XVIII.

St. Charles, 3. . . . Female Ward.

Under care of M. Andral.

FAILLET, æt. 39, day-laborer, widow, entered April 16th, 9½ P. M. At 11 P. M. seen by Mr. Eager, house-physician at La Pitié; said she had been sick three days. Face cool, neck rather moist; extremities cool; rest of body of good temperature; face slightly violet, pale; lips violet; eyes somewhat hollow. Tongue cool, moist, with white coat; borborygmi; frequent stools; no vomiting since entrance. Pulse imperceptible at wrist, very feeble at carotid. Memory and intelligence good; voice feeble; cramps frequent in lower extremities; ringing in ears. No urine since entrance.

April 17th, 8½ A. M. Patient does not remember exactly the date of her disease, neither the order of symptoms; says however, she had at first pain at epigastrium, followed by diarrhœa, vomiting and cramps. Now, lying on right side, with lower limbs flexed; aspect of fatigue; eyes hollow; pupils contracted; face a little leaden colored, rather cool; hands and arms cool, slightly violet; folds of skin of neck slowly effaced; breast a little livid, but of good temperature. Tongue dry, red, clean, imperfectly drawn back after protrusion; thirst urgent; pain at epigastrium compared by patient to that produced by strong pressure; no pain in rest of abdomen which is depressed; no vomiting; severe diarrhœa with colic during night. Pulse at wrist feeble, but easily counted, 88; urine.—Respiration 18, high, costal, sometimes unequal. Mind slow; answers very slow and obtained with difficulty, as she says, because she is sleepy; constant dozing; voice feeble, but not extinct; sight good.

Six leeches to each side of neck. Ten leeches to epigastrium. Sinapisms to thighs. ℥ iv. of the flax-seed enema, opiated. Friction every half hour.

April 17th, 3¼ P. M. Bleeding not copious from leeches. Cheeks somewhat flushed; face warmer; attitude as this morning; no vomiting nor stool; pulse more feeble, very difficult to count, 100. Constant coma, from which she cannot be roused to show her tongue; does not seem to hear questions, attempting no answers.

Flax-seed enema, to be repeated once. Sinapisms to thighs.

Died April 18th, 1½ A. M. Autopsy 18th, 8½ A. M. 7 hours after death.

External appearances. Skeleton well formed; livid spots on face and forehead; lividity of lower extremities; face warmer than at last visit; trunk warm; fatty tissue moderate in quantity.

Abdomen. *Stomach* of ordinary size; contains a glassful of a clear fluid holding in suspension a vast quantity of thin, grass green parcels, composed of filaments, which

sink slowly in water; mucous membrane covered with a somewhat adhesive mucus of the same color, more especially on the posterior face near the pylorus. Internal aspect slightly yellow, with pink tinge in the great cul-de-sac; traversed by red stripes, two or three lines broad, dotted; great cul-de-sac slightly granulated; same appearance yet more marked near pylorus. Mucous membrane a little injected everywhere, very slightly so where it is pale, but quite marked elsewhere; of natural thickness except in the red stripes above indicated, where it is not more than one third or one fourth as thick as the surrounding membrane; everywhere of good consistence; subjacent cellular tissue also quite injected.

Small Intestines in four upper feet a little larger than natural; externally white with slight shade of pink; containing in first half a moderate quantity of a yellowish frothy liquid, somewhat thick, almost entirely mucus in first three feet, then much more liquid and less mucus; very scanty in last half. Internal aspect like external; mucus adhering strongly to the mucous membrane in the last half, much less so in first. Mucous membrane very finely injected at some points, though much less so than the subjacent cellular tissue, so that when it is raised, the pink color is much brighter; of its natural thickness and consistence. Brunner's glands are seen in the whole extent of the ileum, at first rare, not much larger than mustard-seed, afterwards more numerous, and larger in advancing towards cæcum, near which they are as large as millet-seed. Peyer's glands generally white, some few tinged with pink, though much less so than the neighbouring parts; half as thick again as the surrounding membrane.

Mesenteric Glands thicker and more projecting than usual; nearly double their natural size, and reddish opposite the ileum.

Large Intestines rather larger than common, containing a yellowish or greenish homogeneous fluid (pus?) in great abundance, of the same color and consistence in its whole

extent, with some parcels of a half-solid material, not resembling mucus, whiter, very friable, more like fat solidified by cold. Internal surface whitish grey throughout, with three or four red patches in first three fourths; afterwards these patches become much more numerous, of a bright red though not very deep; mucous membrane a little thickened in the first half, which was the most voluminous; thickness afterwards natural; everywhere of natural consistence, and covering a great number of isolated glands, of the size of a lentil and extending through the whole length of the organ.

Liver of ordinary size; rather pale; easily penetrated; bile blackish green, viscid.

Spleen rather large; natural.

Kidneys of natural size; cortical substance pale; no liquid in infundibula and pelves.

Bladder small; mucous membrane natural.

Uterus somewhat large; walls seven or eight lines thick, rather pink; internal surface of a deep red, without any liquid.

Thorax. *Lungs* free; pleuræ healthy; anteriorly pale, posteriorly somewhat violet; lower lobes heavy, especially the right, which is also firmer and finely granulated at several points, especially towards its base, not containing a great quantity of blood and but very little air, hepaticized; upper lobes light, especially right—left more red and containing more blood.

Pericardium moist, containing a spoonful of turbid serum. *Heart* of good size, containing a moderate quantity of liquid black blood, and the right ventricle two red pretty firm fibrinous coagula; walls of left ventricle very firm, six lines in thickness at least.

Aorta contains a considerable quantity of blood partly coagulated; internal surface white.

Head opened same day, at 4 P. M. External surface of dura mater covered with a considerable quantity of blood. Pia mater not much injected, nor cerebral veins much distended; infiltration under arachnoid quite inconsiderable.

Cerebral substance rather moist, of good consistence; very slightly injected, with several marbled spots of a slight lilac tinge on the incised surface; cortical and medullary substances of their natural color; a few drops only of clear scrous fluid in the lateral ventricles. *Pons Varolii* a little paler than common, of good consistence. *Medulla oblongata* natural. *Cerebellum* as cerebrum.

Par Vagum natural as to size, color and consistence.

Cervical Ganglia—middle small, whitish and slightly greyish; the upper larger, greyish, flaccid, but of good consistence.

Semilunar Ganglion rather injected, greyish and reddish externally, much less so internally; of its natural firmness.

Spinal Marrow not examined.

CASE XIX.

St. Charles, 9. . . . Female Ward.

Under care of M. Louis.

FERRY, seamstress, æt. 30, entered April 14th, 9 A. M.; great mental suffering lately from the loss of a child, æt. 16, by the disease now reigning. Attributes her disease to abstaining from food after death of her child. Sick since the 11th. At debut diarrhœa which has continued and is increasing; and vomiting which has been quite severe (ten times a day), bitter; at the same time, pain in the abdomen, which she now compares to cramps; thirst; loss of appetite; was cold and went at once to bed, which she has kept since; aphony since last evening (13th); head-ache to-day only; and cramps for first time since entrance; urine scanty from time of invasion and none to-day.

April 14th, 6 P. M. Eyes expressive of the disease; aspect of the greatest dejection and exhaustion; face livid, cold; lips deep violet; folds of skin of neck slowly

effaced; keeps arms constantly out of bed, saying she does not feel cold, although the hands and arms are cold and livid. Tongue violet, cold; thirst urgent; has desire for broth, took a little, and has not vomited it; immediately afterwards took a little cold lemonade which was at once vomited; pain on pressure of hypogastrium only; abdomen depressed. Pulse imperceptible at wrist; respiration 24, slightly unequal. Mind clear; sight troubled; hearing good; ringing in ears; complains of pain along spinal column; falls constantly into a doze or sleep, from which she is very easily roused; aphony almost complete.

Frictions. 3 iv. of flax-seed tea as an enema, with 3 ss. of laudanum every two hours. 25 leeches to hypogastrium.

April 15th, 8 A. M. Has had leeches from which the bleeding was not very copious. Face and limbs cold and livid as yesterday; arms constantly out of bed, and breast partly uncovered; folds of skin of neck very slowly effaced; great prostration; scarcely answers questions, saying she cannot hear, even when spoken to quite loud. Thirst incessant; cries out each time after drinking; no vomiting; no stool. Has great desire to pass urine but cannot, says she should be cured if she could pass urine. Complains greatly of pain in back and pelvis; cramps continue but do not cause complaints; voice high, crying; is in great suffering; implores death.

Twenty-five leeches to hypogastrium. Sinapisms to thighs three times. Simple enema with laudanum. Friction with a brush every half hour.

Died on 15th, 9 A. M. Autopsy 16th, 9 A. M. 24 hours after death.

External appearances. Skeleton well formed; surface imperfectly cold; some lividity of thighs and legs; limbs very rigid; fatty tissue not very abundant; muscles of a natural color, firm, not pitchy.

Abdomen. *Stomach* of moderate size, containing a little whitish, opaque liquid, in which are seen some flakes

of mucus, a portion of which adheres strongly to the mucous surface, especially on its anterior face, over a space as large as the hand, where the mucous membrane is evidently granulated and of the color of onion-peel; the rest of the anterior face also granulated, especially near cardia, and again over the whole posterior face of the organ, particularly near its middle and in the neighbourhood of the great curvature; not so along the small curvature in the breadth of about an inch, where the membrane is pale; elsewhere it is of a slightly livid pink color, rather less intense than the color of the anterior face before described. Mucous membrane is of its natural thickness and consistence, except in a small part of the great cul-de-sac, on the posterior face near the small curvature, where it is very friable, giving a strip of one to two lines only.

Small Intestines rather larger than common; externally a little livid, or of a pinkish white; containing a light pink mucous material, which is opaque and not very fluid in the first four feet; becoming thinner, less turbid and more red towards the ileum, in the last five feet of which it is almost as fluid as water and mixed with a certain quantity of flakes of mucus. Internal aspect generally very like the external; mucous membrane generally pale, two or three patches of a pink color towards the lower extremity; of its natural thickness throughout, even in the jejunum, where it gives a strip of three to five lines—for next two or three feet from five to six, and in last three feet of ileum of from one to two lines only. The glands of Brunner are seen in the last half of the intestine, not in very great numbers, white, of the size of mustard-seed, becoming larger and more numerous in last two feet of ileum. In this same extent are seen five or six patches of Peyer's glands, of a deep white color, a little thicker than the surrounding parts, healthy. Sub-mucous cellular tissue slightly injected in whole extent. Mesenteric glands natural.

Large Intestines voluminous, almost double the ordi-

nary size in first half, where exists a turbid, rather fluid, greyish liquid ; this liquid is afterwards reddish, becoming of a deeper color on approaching the rectum. Mucous membrane pale in the two first feet ; of a deep pink afterwards, at first in half, and below in the whole of its circumference—more especially so towards anus, half an inch above which, however, it is of its natural white color ; giving a strip of eight to fifteen lines in its whole extent, even where it is most red ; rather thinner where it is red than where white. Brunner's glands are seen somewhat voluminous throughout.

Liver rather small ; external surface less moist than common ; somewhat pale ; considerable quantity of blood in the large vessels ; firm, but a little more friable than usual. Bile in moderate quantity, dark green, rather liquid.

Spleen small, perfectly healthy.

Kidneys natural. *Bladder* size of a small pear, containing a small quantity of a turbid, thick, whitish liquid.

Uterus rather large ; walls eight lines in thickness, of a pinkish white color ; contains a small quantity of dark red blood, beneath which the mucous membrane is villous, infiltrated with blood and softened. *Ovaries*. Left, double its natural size, externally of a brownish color ; in several of its cavities is seen a sort of cyst, which contains a red material, resembling a fibrinous coagulum ; right, natural.

Thorax. *Lungs*. *Left*—pleura somewhat moist, containing no serous fluid ; lung very light, of a lively red, except at its summit, where it is only pink and slightly emphysematous in the height of about one inch and a half ; at its base is an interlobular emphysema ; same color internally and externally. *Right*—universally adherent ; light ; emphysematous at its summit, but no interlobular emphysema at its base ; of a pink color, less bright than left ; but of a somewhat deeper red at its base, where it is rather more dense than elsewhere ; both lungs otherwise perfectly healthy.

Pericardium healthy, moist, containing no serous fluid. *Heart* of good size, containing a moderate quantity of

black blood, a part of which is pretty firmly coagulated. Tissue healthy.

Aorta healthy, containing a considerable quantity of black blood.

Head. Considerable quantity of blood on external surface of dura mater, whose vessels are quite distinct and fully distended. Arachnoid not very moist, viscid to the touch; no infiltration beneath it; pia mater much injected. Cortical substance of a pink violet tinge throughout; corpora striata less so; medullary substance of a marbled pink color in several spots; no fluid in ventricles; pons Varolii and medulla oblongata greyish and firm; whole substance of cerebrum and cerebellum of natural consistence.

Par Vagum very white, of its natural thickness and consistence.

Cervical Ganglia pale, with slight greyish tinge; firm, dense, natural.

Semilunar Ganglion rather small; very dense; externally greyish; internally greyish and white.

Spinal Marrow not examined.

CASE XX.

St. Rosaire, 10. . . . Female Ward.

Under care of M. Louis.

LECOFFE, æt. 66, washerwoman, entered April 6th, 9 A. M. Sick since the 5th, at 5 A. M.; was in perfect health before; has been well nourished during winter and lives in a dry room. At the debut, diarrhœa, vomiting and slight cramps, which increased last night; colic soon afterwards, which has also increased since entrance; moderate heat of trunk at debut, with coldness of feet.

April 6th, Noon. Countenance sufficiently natural; eyes rather sunken; nose cool; cheeks of their ordinary temperature; folds of the skin of the neck slowly effaced;

fore-arms and legs cool. Tongue yellowish, moist, a little cool; abdomen soft, supple; a little pain at epigastrium, with or without pressure; has vomited a clear green liquid several times since entrance, but no stool. Pulse 80, regular, very feeble; has passed very little urine since invasion and none since entrance. Respiration 28, somewhat high, regular, without dyspnœa. Intelligence and memory perfect; sight good; pain in one of her ears last night, which has now ceased; voice feeble since yesterday evening; has just now had a slight cramp in the calf of the leg.

Lemonade and Seltzer water alternately.

Dry frictions every two hours. Potion with alcohol, if the patient becomes very cold.

April 8th. Face red, slightly violet, warm; hands cool and rather violet. No vomiting nor stools since day before yesterday; occasionally some slight pains in the abdomen, which are soon relieved by the application of a cataplasm. Pulse 74.

Lemonade. Cataplasm to abdomen. Dry friction every three hours.

April 9th. Has slept but little; no vomiting nor stools. Heat natural.

Tea for drink. Let her take $\frac{3}{4}$ vi of coffee. Enema to be repeated once.

Died on the 9th, and autopsy on the 10th: the hour of neither is noted.

External appearances. Skeleton large; surface not completely cold; no lividity; limbs very rigid; no emaciation; muscles soft, pale; two or three last cartilages of ribs ossified.

Abdomen. *Stomach* rather large, containing a quantity of a green liquid, in which float several flakes of mucus, whose color is also green, but less deep; internal surface, especially in pyloric half, lined by an adhesive mucus, which is but very partially removed by washing. Internal surface of a blueish white color, with some red spots in the great cul-de-sac near the large curvature, over a

surface of about two inches ; elsewhere of a reddish grey, except near the pylorus, where it is of a deep yellow with bright red points. In the portion of the great cul-de-sac above indicated, the mucous membrane is very thin, much softened, yielding in many points a strip of one line only in length ; elsewhere it is of its ordinary thickness and consistence, and nowhere granulated.

Small Intestines reddish grey externally ; slightly distended by gas in the second half ; containing at first a greenish material, afterwards yellowish and greenish, neither very abundant, nor very liquid. Internal surface resembling much in color the materials that were in contact with it. Mucous membrane thin, pale, greyish, or slightly yellowish throughout ; of its ordinary thickness, and giving a strip of five to eight lines in the four first fifths, and of two to three only afterwards. Glands of Brunner seen in last few feet, scattered ; Peyer's glands healthy. Mesenteric glands natural.

Large Intestines much distended ; two or three times their ordinary volume ; containing a yellowish half-liquid material in the first half, which becomes more consistent and green below. Mucous membrane in upper half yellowish or greyish, and yielding a strip of ten to twelve lines, but less adherent to sub-mucous tissue than usual ; in lower half of a light, or whitish grey color, a little thicker than common, and giving a strip of two to five lines only.

Liver of its natural size, firmness and color, containing a moderate quantity of blood only. *Bile* abundant, of a very deep green color, quite liquid.

Spleen small, firm ; slightly pale internally.

Kidneys pale, of natural consistence, containing none of the white fluid in the infundibula.

Bladder distended by half a pint of urine ; healthy.

Uterus small, of a blackish red internally and in its whole substance.

Thorax. *Pericardium* moist, containing no serum however. Great quantity of blood in both cavities of the

heart, which is black, still warm, mostly liquid, but containing some few slightly fibrinous coagula; heart perhaps a little larger than common; firm; left ventricle somewhat hypertrophied, its wall being eight or nine lines in thickness.

Lungs. *Left*, large, not collapsed, light and everywhere emphysematous; upper lobe contains very little blood, is firmer than natural; lower lobe the same, of a more deeply red color. *Right*, lighter than left and more distinctly emphysematous, i. e. the cellules are larger; otherwise the same as left; no tubercles in either, and bronchia healthy.

Head. Veins of dura mater moderately distended with blood; infiltration of serous fluid under the arachnoid quite inconsiderable; two or three spoonfuls of serous fluid in right lateral ventricle; less in left; substance of brain of its natural color and consistence.

Medulla Spinalis natural.

Semilunar Ganglion and *Par Vagum* natural.

CASE XXI.

St. Rosaire 24. . . . Female Ward.

Under care of M. Andral.

BERNET, æt. 69, worker in cotton, entered April 5th, 9 A. M. left prison of St. Lagaseon on 1st. On 1st. at 10 A. M. while eating, nausea and vomiting of a greenish yellow bitter fluid; colic and a very abundant diarrhœa of a yellow liquid on the same day, as also cramps not very severe, in legs and thighs; all these symptoms have continued to the present time.

April 5th, 10½ A. M. Now, eyes sunken and encircled by a dark ring; expression of great fatigue and prostration; lips violet, cheeks and chin cool, nose cold; hands cool; feet violet and cold; says 'she feels cold. Tongue nearly natural, as to color, slightly viscid, of nat-

ural temperature; thirst great from debut; no nausea at this moment; no pain in abdomen. Pulse imperceptible at wrist, 84 by carotid; respiration 36, costal; cannot give sufficiently exact information as to urine. Dizziness, aphony.

For drink let her take infusion of lime-flowers and lemonade.

R Inf. Menth. Vir.	℥ iv.
Quinin. Sulph.	gr. xv.
Æther Sulph.	gtt. xx.
Camphor.	gr. xii.
Syr. Aurant. Cort.	3i. M. 3ss. every hour.

Friction with Tr. Cantharid.

April 5th, 7 P. M. Tongue dry; face cadaveric; answers only with extreme difficulty; skin icy.

Died on 5th, at midnight. Autopsy 6th, 11 A. M. 11 hours after death.

External appearances not noted.

Abdomen. *Stomach* contains an abundant green material. In the mucous membrane of the great cul-de-sac are seen numerous whitish granules resembling follicles; in this part the mucous membrane is reduced to a greyish pulp, beneath which the parietes of the organ are very thin: whole posterior face even to the pylorus is occupied by numerous folds, which are generally red but not uniformly so; the mucous membrane constitutes these folds and between them is thickened; for two fingers' breadth from the pylorus the mucous membrane is granulated: fine capilliform injection around the cardia and in the middle of the small curvature. Consistence of mucous membrane every where good, except in the great cul-de-sac as above indicated.

Small Intestines filled with a liquid, which in the upper part is yellow, and below consists of a great number of whitish masses suspended in a greyish and semi-transparent fluid; acid to very nearly the end of the ileum, there alkaline. The internal surface in the first four-fifths is pinkish, pale or white in the last fifth. Six patches of

Peyer's glands were observed of the following dimensions: 1st, 13 lines in length by 3 in breadth; 2d, 10—4; 3d, 15—7; 4th, 16—7; 5th, 16—6; 6th, 6—4; all pale and not remarkably prominent. Nothing else remarkable in the small intestines.

Large Intestines contain an abundant clear liquid, not very thick, of a French chocolate color above, and a more decided red below. Internal surface of cœcum and ascending colon of a bright red color, but the mucons membrane is of its natural consistence; in transverse colon the membrane is of a still brighter red and softened; this continues with occasional ecchymoses into the descending colon; large ecchymoses in sigmoid flexure and rectum.

Liver—usual size and consistence—bile given in gall-bladder to M. Dumas, the chemist.

Spleen two inches, six lines long; two inches broad; rather soft.

Kidneys. Right—two serous cysts in its substance; none of the usual white matter seen in the infundibula of this, or of the left. *Bladder* contains a little white liquid as usual; contracted.

Uterus—abscess of the size of a large walnut in its parietes containing a pure pus; otherwise natural.

Thorax. *Pericardium* dry. *Heart* enveloped in a great abundance of fat; substance of heart red and firm: fibrinous coagula in its right cavities.

Lungs—emphysematous to a marked degree; red and engorged behind, dry and pale in front; crepitating everywhere.

Head and nervous system not noted.

CASE XXII.

St. Rosaire, 19. . . . Female Ward.

Under care of M. Andral.

G*****, æt. 49, labouring-woman, entered April 4th, 11½ A. M. Period of invasion, previous circumstances

and general health unknown, as the patient is too far gone to give any information upon these points.

April 5th, 9 A. M. Face livid; nose and rest of face cold; eyes much sunken and encircled by a very dark ring; extremities violet, whole skin cold. Tongue cold, moist, violet with white coat at centre; acute pain at epigastrium, and more especially about umbilicus, increased on pressure; thirst urgent and continual; has had diarrhœa and vomiting. Pulse not perceptible at wrist, 96 by carotid. Respiration 48, very high and very costal. No urine; no desire to pass any. Intellect apparently clear; voice completely extinct, cannot speak, answers only by signs.

Solution of gum-arabic. Sinapisms to extremities. Friction with Tr. Cantharid. of limbs and trunk. Sinapism to abdomen.

Died at 12½, April 5th. Autopsy at 10 A. M., 6th, 21½ hours after death.

External appearances. Cadaveric rigidity of limbs very considerable. Face violet. No superficial veins visible. Muscles of natural brownish red color.

Abdomen. Some portions of the peritoneum slightly dry; a black, curdled blood escapes from the inferior vena cava; vena porta contains a black blood, not coagulated; biliary ducts of their natural size.

Stomach—Internal surface of œsophagus white; upon it are seen several follicles as usual. Stomach, contracted in its pyloric portion, contains a liquid, and in it several (20) morsels of green vegetable food, unmasticated and undigested; the liquid acid, stains blue paper; thick mucus adheres to the whole of pyloric portion. Numerous red folds on anterior face, between which folds the mucous membrane is pale; space occupied by these red folds four and a half inches long, two and a half broad. Mucous membrane of great cul-de-sac granulated in a part of its extent, and there thickened, but white and of good consistence; towards the great curvature it is also thickened and red. Mucous membrane everywhere of natural consistence.

Small Intestines. Duodenum and upper part of jejunum contains a yellowish grey liquid in great abundance, reddening the vegetable paper; lower down the liquid is brown and clearer, not acid. Internal surface of duodenum and upper part of jejunum of a pinkish hue; Peyer's glands pale, but easily distinguished; in last three and a half feet several of Brunner's glands rather prominent upon a pale mucous membrane; nothing farther very remarkable.

Large Intestines—contain an abundant, clear, dark red, chocolate colored fluid, which has no fœcal smell. Bright red injection of internal surface of cœcum, which is continued into the ascending colon; numerous ecchymoses in tissue of transverse colon, which is likewise injected; dark grey color of descending colon, and again bright injection of rectum.

Liver—of ordinary volume and consistence; tissue rather pale. Some calculi in gall-bladder, which was given unopened to chemist.

Spleen—five inches long, three broad; of natural color and consistence.

Kidneys—contain considerable blood in tissue, and a small quantity of liquid like a very turbid urine in infundibula.

Bladder contracted, pale internally, and containing a tea spoonful of a thick, grey fluid which is acid.

Thorax. *Pericardium* perfectly dry; *Pleura* gluey or sticky, but not dry. *Heart*—fibrinous coagula in right cavities; black, curdled blood in left; tissue of its natural color and consistence; concentric hypertrophy of left ventricle. *Aorta* healthy, contains a black blood.

Lungs—crepitate everywhere; dry in front; engorged posteriorly; healthy. *Larynx*—internal surface pale; empty.

Head. Veins of membranes distended with blood; substance of brain natural; very little serous fluid in ventricles.

Spinal Marrow—healthy as to color and consistence.

CASE XXIII.

St. Rosaire, 20. . . . Female Ward.

Under care of M. Andral.

LEFEVRE, æt. 41, seamstress, entered April 2d, 9 A. M. lives chiefly on vegetables, habitually in good health. Having eaten a salad with hard eggs on the evening of April 1st, she went to bed in good health; at 1 A. M. of April 2d, she was awaked by a desire to go to stool; while satisfying this desire, nausea and vomiting supervened; towards 7 A. M. severe cramps were added to the other symptoms; vomiting frequent and abundant of a brownish liquid, which at first resembled whey; no urine since invasion; abundant sweats.

April 2d, 3 P. M. cheeks red, nose and lips violet, face cold; eyes hollow and encircled by a black ring, not fixed and rather lively; expression of anxiety; patient utters constant complaints, saying that her heart fails her. Tongue moist, white at centre, without redness at point; has now nausea immediately after taking a few mouthfuls of drink, followed at once by vomiting of the same. Pulse just perceptible at wrist; hands warm. Aphony.

7 P. M. for last two hours complains of pain at epigastrium and left hypochondrium, since which constant eructation; no pain in rest of abdomen; has uniformly vomited after hot drinks, but not at all since she takes cold lemonade; vomited also the two first doses of an opiated mixture, but has since retained it; now no desire to vomit; no stool since entrance; disposition to fall asleep.

Lemonade. Every hour a spoonful of a mixture consisting of 3 iii. of laudanum in 3 iv. of vehicle.

3rd, 9 A. M. face red, cheeks warm, nose cool; eyes expressive of the disease, constantly closing, pupils contracted; slight injection of right conjunctiva; hands violet, warm. Tongue moist, with a thick yellowish coat; thirst continues; pain in left hypochondrium diminished; several vomitings of a yellow liquid during night; no stool since yesterday; pulse pretty well developed, 120; skin

covered with a clammy sweat; respiration not high; patient does not complain of dyspnœa; aphony; complains of dizziness and ringing in ears; drowsy.

Ptisan of lime-flowers sweetened. Lemonade, sweetened with 3 ii. of syrup of gum-arabic.

R. Infus. Tiliæ.	3 iv.	
Ammon. Acetat. liq.	3 i.	
Tinct. Opii.	gtt. xii.	
Alcohol.	3 ss.	
Syr. Aurant.	3 i.	M.

Take a spoonful every hour.

6 P. M. cheeks cool; nose icy cold; hands cool. Tongue moist, yellow, warm; no pain in abdomen; no vomiting; no stool; pulse 128, small; respiration as this morning, cannot be counted; no urine.

Lemonade. Mixture of gum arabic with sulphate of quinine every hour.

Died 4th, 6 A. M. Autopsy same day, 11 A. M—five hours after death.

External appearances—not noted.

Abdomen. Peritoneum not dry. Omentum slightly engorged.

Stomach—contains a light yellow liquid, in which float numerous, small, white masses. Mucous membrane of the posterior surface red, somewhat thickened, not softened; several small red patches upon the anterior surface and small curvature, of natural thickness and consistence; some red patches also near the pylorus. Towards the anterior face and near the pylorus the mucous membrane is granulated.

Small Intestines—contents various—in the upper part is a yellow, frothy, adhesive liquid, at first by itself but lower mixed with a milky substance, which last still lower exists alone. This last substance is composed of two parts; one slightly solid and of an opaque white; the other liquid and semi-transparent, resembling whey, and holding the first in suspension; this ceased towards the end of the ileum, where was seen a thick yellowish grey mucus, like a ‘marmelade de pommnes.’ These different

liquids are all without smell. There was found one lumbricus just above the cæcum.

From the duodenum to the end of the jejunum the mucous membrane was of a slightly pink color, without any peculiarity. For about six inches from the commencement of the ileum it was somewhat red, and below slightly pink again. Fourteen patches of Peyer's glands were seen and measured—their dimensions are as follows:—1st, 13 lines in length by 3 in breadth; 2d, 12—3; 3d, 11—3; 4th, 10—3; 5th, 11—3; 6th, 7—4; 7th, 11—3; 8th, 7—4; 9th round, 3—3; 10th, 3—3; 11th, 7—3; 12th, 14—5; 13th, 5—5; 14th, 21—11; all these patches were white as also the surrounding mucous membrane; all very slightly but not more prominent than natural. A few follicles of Brunner in last part of ileum.

Large Intestines. A second lumbricus in *cæcum*; this intestine contains an ash-grey adhesive liquid, which in the *colon* becomes dry, pitchy, adhering to the mucous surface, in color and consistence resembling dark putty. In the mucous membrane of the cæcum are some red patches as large as a dollar, on which are seen a few follicles; rest of the mucous membrane pale, except a few folds which are of a livid red but without any trace of follicles.

Liver—length nine inches, thickness eight, rather dry, of a pale red color, and natural consistence. Bile not very abundant, of a dark green color, more liquid than we have commonly seen in the subjects of this disease.

Spleen—length $3\frac{1}{2}$ inches; breadth two inches; internally of a pale red and natural consistence.

Kidneys—reddish—several of the infundibula contain a white puriform matter in small quantity.

Bladder—contracted, containing no urine; mucous membrane lined by a liquid like that found in infundibula of kidneys.

Uterus—filled with a dark red adhesive fluid.

Thorax. Pericardium dry. Small coagulum in aorta; none in heart.

Lungs. Pale and crepitating anteriorly; red and engorged posteriorly.

Head. Veins on surface of brain distended with blood; tissue of brain slightly congested, as appears by the bloody points on incised surface; of good consistence; a little reddish serous fluid in the ventricles.

Medulla Spinalis—healthy.

CASE XXIV.

St. Paul, 17. Male Ward.

Under care of M. Louis.

DEZOT, æt. 62, shoemaker, entered April 15th, at noon. Lives in a damp room; insufficiently nourished during winter; cough for many years, and emaciation since January last; otherwise habitually well. On April 12th, having been perfectly well the preceding day, indisposition all the morning, and at 11 A. M. without any preceding chill, diarrhœa without colic, which has continued; frequent watery stools; vomited for the first time this morning (15th,) in the street at 7 A. M. (five or six times); at the same time aphony; some nausea on the preceding days, but no vomiting; cramps since entrance to hospital. Thirst since debut; eat bread and eggs at 9 P. M. last evening (14th); no food since; slight headache since yesterday; sight troubled since entrance; ringing in the left ear, none in right; says respiration was easy before the vomiting, but embarrassed since; says has been cold from debut; urine very scanty since 12th; did not go to bed until entrance, and has used no remedy of consequence.

April 15th, 6½ P. M. Eyes characteristic of cholera, lips violet; cheeks cool, nose cold; folds of skin of neck slowly effaced; hands violet, wrinkled, warm; skin generally

quite warm; says he feels cold. Tongue violet, livid, cool with thin whitish coat; thirst incessant, very urgent; pain at epigastrium increased on pressure, none in rest of abdomen; no nausea at present; since entrance very copious vomiting of a watery fluid; in liquid last vomited at 4 P. M. are several small flakes like broken rice, and three or four white very friable masses of the size of a bean; two very copious stools since entrance, resembling water containing a quantity of broken boiled rice; no vomiting since 4, nor stool since 3 P. M. Pulse small, very feeble, 116, less easily felt at left wrist than at right; no urine since entrance; respiration 40, costal. No head-ache; sight troubled; ringing in left ear only; aphony; cramps severe; air of great prostration and suffering; mind clear.

April 16th, 8 A. M. Got last night the following mixture, $\frac{3}{4}$ i. of alcohol, $\frac{3}{4}$ ss. of laudanum with $\frac{3}{4}$ i. of syrup and $\frac{3}{4}$ iv. of watery vehicle, which was repeated and after that he became warm. Now, face expressive of less suffering; cheeks moderately sunken, cool; nose cold, chin warm; folds of the skin of neck slowly effaced, as also those of upper part of breast, though less so; heat of limbs and trunk nearly natural; face perhaps a little livid; lips very slightly violet, less so than last evening. Tongue whitish at edges, of natural color at centre where it is dry; thirst intense; prefers warm drinks; abdomen depressed; epigastrium painful on pressure; patient compares this pain to a pressure which embarrasses the respiration; similar pain, though much more severe, low upon each side of the chest; no vomiting; four stools. Pulse 80, small, feeble, regular; no urine. Respiration 28, calm. No head-ache; sight 'blue'; ringing in left ear; mind clear; voice less feeble than last evening; air calm, none of the agitation and apparent suffering observed last night.

Lemonade. $\frac{3}{4}$ iv. of flax-seed enema with laudanum, to be repeated once.

Same mixture as last evening without the laudanum.

April 16th, 4 P. M. Cheeks rather cooler than this morning; says he is feebler; constantly falling into a doze, from which he is easily roused; hands and arms cool, slightly blueish. Tongue dry, granulated; no vomiting; no stool; pressure upon epigastrium less painful than yesterday. Pulse 88; urine involuntary and sufficiently copious. Respiration 28. Voice feebler. No cramps.

Friction every half hour.

April 17th, 8 A. M. Face livid, cold; eyes half closed; fore-arms very cold; thighs and abdomen warm; great dyspnœa and a loud tracheal râle or rhonchus for the last three hours; cannot speak. No vomiting; frequent stools. Pulse imperceptible; urine copious. Respiration very rapid; dyspnœa extreme. No cramps.

Mixture with alcohol, but without the laudanum.

Sinapisms to thighs for quarter of an hour, twice.

Died 17th, 3 P. M. Autopsy 18th, 9 A. M.

External appearances. Skeleton perfect; emaciation considerable; face livid, blueish; limbs quite rigid; muscles of a natural color and consistence.

Abdomen. *Stomach* of moderate size; containing only a small quantity of greenish or yellowish opaque (purulent?) mucus which adheres to the membrane beneath, without any clear liquid of any description. Internal aspect generally dark grey and red, except along the small curvature and upper part of the great cul-de-sac, where the redness is very unequal and it is grey in a few patches only. Mucous membrane almost universally of a darkish grey color, very slightly injected, so that the redness above indicated is chiefly owing to an injection of the subjacent cellular tissue; granulation along the great curvature in the breadth of three inches till within three inches of the pylorus on one side and the cardia on the other; in this portion the mucus is more adherent than elsewhere; everywhere of good thickness and consistence.

Small Intestines rather larger than natural, being slight-



ly distended with gas ; unequally reddish and greyish externally in the whole extent, except last four feet, where it is greenish and blueish ; containing an abundant yellowish red liquid in the upper half ; in the lower, also an abundant fluid which is of a more decided red color and quite turbid. Internal aspect like external. Mucous membrane very slightly injected at a few points only, subjacent cellular tissue much so, seeming to be almost the sole seat of the redness above indicated ; this injection of the cellular tissue is much greater in the last five feet than elsewhere, while the mucous membrane is not at all injected in this part ; mucous membrane of natural thickness throughout, giving a strip of three to five lines above, and from two to four only in last four or five feet, where it is of a greenish color. Some few very scattered isolated glands of Brunner seen in last five feet. Peyer's glands hardly apparent. Mesenteric glands generally small ; those corresponding to last part of intestine rather larger and redder.

Large Intestines. Internal aspect greyish, with intervals of a livid pink tinge in upper third ; then of a livid reddish grey ; afterwards a dark almost black grey, becoming of a dirty brown color in the last two feet, where it also exhales a gangrenous odor. In this last part are seen several round black red spots of half a line to a whole line in diameter, where the color resides in the subjacent tissue and the mucous membrane still exists. Mucous membrane not evidently destroyed in any part ; at some points slightly injected in its own substance ; in upper third very much softened and rather thicker than natural, giving a strip of two to three lines only ; below it is thin, giving a strip at intervals a little longer, but constantly varying in length, and this, as it seems, independently of any peculiar coloration of the membrane. Cellular tissue incomparably more injected than the mucous membrane ; large veins and very fine injection both seen in it. No glands observed.

Liver of good size ; rather deeper color than usual ;

finely granulated, of natural consistence; on the upper face of the great lobe exists a small encysted tumor, of the size of a filbert, moderately hard, yellowish, easily friable, resembling the material found in the aorta of aged subjects at the period of commencing ossification; on the middle lobe is a yellowish or greyish spot, without any projection upon the surface, extending half an inch into the substance, of about the size of a filbert, resembling the surrounding natural tissue in structure, consistence, and everything but color.

Gall-Bladder distended by a dark green, viscid bile.

Spleen natural as to size and color; rather soft.

Kidneys—natural.

Bladder size of a small pear; containing a small quantity of a rather liquid, turbid, milky fluid; mucous membrane of natural aspect, but perhaps rather less consistent than usual.

Thorax. Lungs. Left—A few partial adhesions; pleura otherwise healthy; slightly emphysematous in summit; greyish or blueish, rather heavy, especially lower lobe, which contains rather more blood than natural without much air, being however neither spleenified nor hepatized; in the fissure which separates the two lobes is seen a tumor of the size of a hen's egg, elastic, hollow, formed by the destruction of numerous vesicles, containing only a few long thin filaments which fall to the base of the tumor when it is opened; in its walls run small vessels one half to one line in diameter generally, but one much larger, nearly two lines, which is opaque, without any valves, and leads into the first division of the pulmonary artery; no other remarkable lesion in this lung.

Right.—More adhesions, but partial only; lung larger, heavier; lower lobe less crepitating than corresponding one on left side, hepatized, friable, granulated at several points; emphysema of whole free edge of the upper lobe without any projection of the vesicles at this part; at the summit is an irregular, projecting tumor, semi-transparent, very elastic, separated by a furrow at its base

from the rest of the lung, with numerous little white lines like nervous filaments on its surface, at once subsiding on incision and having the same aspect internally as the tumor described in left lung except that the same vessels are not seen in its walls.

Pericardium adhering closely to the left lung, the two surfaces being very dry; everywhere adherent to heart by a slight cellular tissue which is easily torn. Heart of a moderate size, rather soft and flaccid, of its natural thickness, containing a quantity of black liquid blood with a few amorphous coagula, and one fibrinous coagulum in each ventricle.

Head. Opened at 3 $\frac{3}{4}$ P. M. of the same day. Dura matter covered on its external surface by a great quantity of blood, and its vessels quite distended. Considerable quantity of serous fluid under the arachnoid. Pia mater moderately injected; veins at base of brain much distended with blood. Whole cerebral substance of good consistence; cortical substance and corpora striata of a violet or livid pink, of deeper color than ordinary; white substance considerably injected, though to my eye the bloody points were less numerous than I have generally seen them in this disease; several clear, lilac, marbled spots seen on its incised surface; at least $\frac{3}{4}$ iii. of serous fluid in the right ventricle, less in the left; the septum lucidum ruptured, but not softened; some hydatiform cysts in the posterior extremity of the choroid plexus; slight effusion of blood at the base of the brain on the left side between the sphenoid bone and the occipital foramen, of a line or less in thickness and three in breadth; *Pons Varolii* firm, livid pink as if marbled; *medulla oblongata* natural. *Cerebellum* as cerebrum.

Par Vagum of natural size and color.

Cervical Ganglia. Middle small; upper greyish, firm; both natural.

Semilunar Ganglion of moderate size; pale grey and very slightly pinkish; internal aspect same as external; natural.

Spinal Marrow not examined.

CASE XXV.

St. Charles, 6. . . . Female Ward.

Under care of M. Louis.

DELESSE, æt. 47, washer-woman, entered April 11th; well nourished and in good health during winter, though she lives in a damp chamber. Unwell since April 10th, in the morning; had head-ache and diminution of appetite during day, but eat soup as usual and washed at the river until 3 P. M. While still in bed this morning (11th,) at 5 A. M. was suddenly taken with severe diarrhœa (20 stools successively) which still continues, clear, watery; vomiting of a bitter fluid on her arrival here at 4 P. M., consisting partly also of some broth she had taken before her entrance; a few severe cramps at 10 A. M. this morning, in legs; voice very feeble since last evening; came to hospital on litter, could not have walked.

April 11th, 5½ P. M. Eyes sunken, partially closed; nose cold; cheeks cool; lips violet; upper extremities not cold, lower of natural temperature; slight drowsiness. Tongue moist, reddish violet, slightly warm; no pain in abdomen even on pressure; yellowish or whitish stools, with strong fæcal odor. Pulse 80, regular, very feeble; a little urine since this morning. Respiration 24, not high; slight head-ache; sight good; no ringing in ears; mind clear; aphony; no cramps.

Lemonade. ʒ iv. of flax-seed enema with ʒ ss. of laudanum every two hours. Friction.

April 12th, 9 A. M. Pulse 84, feeble, regular; heat natural except of face.

Continue treatment.

April 12th, 4 P. M. Constantly dozing; sometimes deep sleep; heat of extremities natural. One stool; no vomiting; slight head-ache; no cramps.

Omit enemata.

April 13th, 9 A. M. air of slowness and prostration; almost constant dosing; face not livid, of a nearly natural temperature; lower extremities and trunk of their natural warmth; eyes somewhat injected. Tongue moist, not livid, warm; thirst urgent; no nausea after drinking; abdomen soft, without pain; no vomiting; no stool. Pulse 96, very feeble; urine. No dyspnœa; occasional sighing. Senses perfect; no ringing in ears: voice almost natural; no cramps.

Lemonade. Flax-seed enema. Friction of lower extremities. Sinapisms to legs twice.

April 13th, 4 P. M. deep coma from which it is impossible to rouse the patient; slight grimaces on hard pinching of skin; face warm, not livid; respiration slow, not very high. Pulse 96. No stool for three or four hours. Same state as at present since noon.

V. S. ad $\frac{3}{4}$ x.

Died on April 13th, 9 P. M. Autopsy 14th, 9½ A. M. 12½ hours after death.

External appearances. Skeleton perfect; heat still preserved on abdomen and thighs; upper limbs slightly rigid, lower not at all so; no lividity of skin; fatty tissue moderate in quantity; muscles red, a little soft.

Abdomen. *Stomach* of moderate size, perhaps rather large, containing $\frac{3}{4}$ v, or vi. of a somewhat turbid, greenish yellow liquid, in which float some flakes of mucus. Internal surface greyish or yellowish along the small curvature to a greater or less distance on each side; reddish but unequally so in pyloric portion, pointed with red in a part of the great cul-de-sac to the left of the cardia, a little orange-colored below; almost the whole pyloric half granulated, the granulations varying in size and not very prominent, nor existing elsewhere. Mucous membrane of its ordinary thickness and good consistence in the great cul-de-sac, where its substance is more or less injected; slightly softened in the neighbourhood of the great curvature, anteriorly and posteriorly, in the length of three inches and breadth of two, being in this part

much less injected than in great cul-de-sac; elsewhere of its natural thickness and consistence. Near the small curvature, on the posterior face, rather nearer the cardia than the pylorus, is a white opaque spot, four lines in diameter, very smooth, not exactly of a radiated aspect, where the mucous membrane is very thin and very strongly adherent to the subjacent cellular tissue, which last is there thicker and more opaque than elsewhere.

Small Intestines. Greyish and a little violet pink externally; of their ordinary volume in the first five feet, smaller below; containing in upper part a quantity of a greenish, or yellowish somewhat adhesive mucus and one lumbricus, below empty and almost dry. Mucous membrane slightly injected, red, in the extent of three or four inches at the union of the first with the second third of the intestine, which injection is observed occasionally at intervals below. At the commencement of the ileum, is an ulcer, transverse, occupying the whole circumference, two or three lines broad, but of unequal diameter, with unequal prominent edges, its base or bottom being of a blueish green color, smooth at least in a part of its extent, and seeming to be cicatrized; three or four feet lower down is seen a similar ulcer, rather larger, less greyish, apparently not cicatrized, with rather prominent edges, but without very precise limits. Mucous membrane everywhere thin, even in the jejunum, where it is red at intervals; everywhere also of good consistence even in ileum, where it gives a strip of six to eight lines. No glands of Brunner seen. Some oval patches of Peyer's glands not more prominent than natural. Several of the mesenteric glands enlarged, size of a large bean, of a violet red color, and of but a moderate consistence; this particularly in upper half.

Large Intestines rather larger than usual; containing an abundant, light grey, pultaceous material in the two first feet, less abundant, dark grey and less moist below, and again more fluid in rectum. Mucous membrane generally white and greyish in its whole extent, at intervals

spotted with red in its first five-sixths, in which part it is thin and of good consistence; more generally violet at the sigmoid flexure and in the rectum, and less consistent in these parts. Four inches from the anus are two irregular ulcers, greenish or greyish green, of an inch in diameter, formed by the subjacent cellular tissue, which is swollen and elevated.

Liver of common size; dry externally; containing about as much blood as usual, but rather softer. Bile abundant, deep green, liquid.

Spleen small; rather soft; natural.

Kidneys of common size; cortical substance somewhat pale; rather friable.

Bladder healthy, containing a moderate quantity of urine.

Uterus rather large; internal surface of a brownish red, containing a small quantity of liquid blood of the same color; its parietes are rather more red and thicker than common, but of their ordinary consistence.

Thorax. Lungs. Left: some adhesions of summit and of middle lobe; superior half of upper lobe emphysematous; at its summit are a number of dark, greyish, semi-transparent bodies, at the centre of some of which is deposited a little cretaceous matter; lower lobe of a bright red. *Right:* upper and middle lobes emphysematous, especially the last; upper lobe of a bright red color, containing no granulations as does left; lower lobe of a brownish red color, rather heavy, not hepatized, without air, and but little liquid, spleenified. *Larynx* empty; natural.

Pericardium healthy, containing $\frac{3}{4}$ i. of limpid, yellowish, serous fluid. *Heart* of a very moderate size, containing an abundance of liquid, black blood still hot, with a few amorphous coagula; tissue rather soft, flaccid, like the muscles of the trunk, healthy.

Head. Pia mater moderately and unequally injected. *Brain* scarcely injected; of good consistence; cortical substance and corpora striata of natural color; a few

drops of clear serous fluid in the lateral ventricles. *Cerebellum*, *pons Varolii* and *medulla oblongata* of their natural color and consistence.

Par Vagum natural as to size, color and consistence.

Semilunar Ganglion prominent, rather large; greyish, paler internally than externally; about two lines in thickness; firm, of good consistence.

Spinal Marrow not examined.

CASE XXVI.

St. Paul, 15. . . . Male Ward.

Under care of M. Louis.

ORSIN, æt. 52, travelling-merchant; well nourished during winter and enjoying habitual good health; now sick since April 9th. At debut on 9th, diarrhœa which has continued increasing to the present time, (four or five stools daily at first, yesterday ten) attended with much rumbling in bowels and dull abdominal pains while at stool; appetite somewhat diminished on the same day; vomited for the first time last evening (11th) at 7 P. M.; complete loss of appetite from that time; an hour after cramps, commencing in soles of feet, since invading whole of lower extremities, less severe in upper; urine suppressed since the vomiting; some head-ache; hearing good, but sight obscure; voice weak; great feebleness, so that he could not walk down stairs since last evening.

April 12th, 10 A. M. Has had frictions, etc. and twenty or twenty-five leeches to epigastrium; these still bleed slightly. Face, even in its centre, of natural temperature; features somewhat sharp; eyes hollow; natural heat in upper and lower extremities; folds of skin of neck slowly effaced. Tongue rather moist, with a white coat, villous and slightly violet at its edges; thirst urgent; desires cool and sour drinks; no nausea after drinking; no pain at epigastrium since the application of the leeches, before

which there were some pricking pains in this part; no stool for an hour and a half—the last, which is preserved, is composed of a liquid which much resembles clear rice water; slight colic with stools; no rumbling at present in bowels. Pulse 120, feeble, small, counted with great difficulty; no urine. Respiration 24, rather high; respiration embarrassed since this morning; says it was not so previously to this disease; pain in both sides of chest on full inspiration. Intelligence perfect; hearing good, sight a little obscure; voice generally almost extinct, but on great effort speaks loud; cramps less since warmth and friction.

Lemonade. $\bar{\text{z}}$ iv. of flax-seed enema with 3 ss. of laudanum, every two hours. Continue friction.

April 12th, 4 P. M. feels better; face not very livid, cold, though it does not feel either cold or hot to him. No vomiting. Pulse 112, rather more full; hands warm; no urine. Respiration rather frequent; less pain in sides of chest. No head-ache; disposition to coma; aphony.

Sinapisms to lower extremities.

April 13th, 9½ A. M. Heat of body natural, as also of face, except nose, which is cool. Some nausea without vomiting; three stools during night. Pulse 112, small, regular; no urine. Respiration easy; less pain in chest. Sight good; voice stronger.

Lemonade. Flax-seed enema, to be repeated once. Cataplasm to epigastrium. Friction of lower extremities.

April 13th, 5½ P. M. Face without expression, cool; nose cold; folds of skin of neck rather slowly effaced. No vomiting; rumbling in bowels produced by very slight pressure on abdomen; three stools. Pulse scarcely perceptible. Sight and hearing good when roused, but is in a state approaching coma when left to himself; aphony almost complete; no head-ache.

Sinapisms to lower extremities. Friction every hour.

April 14th, 7 A. M. face as yesterday, cold, not violet, without expression; hands and fore-arms likewise cold, but not violet; breast somewhat livid, violet. Tongue

moist, yellowish, cold ; no thirst, having to be forced to drink ; a little pain on pressure of abdomen ; no vomiting ; no stool. Pulse imperceptible ; no urine. Comatose.

Mixture of $\frac{3}{4}$ ss. of alcohol to $\frac{3}{4}$ iv. of vehicle.

Died 15th, 2 A. M. Autopsy 15th, 9 $\frac{1}{2}$ A. M. 7 $\frac{1}{2}$ hours after death.

External appearances. Skeleton rather large, well formed ; lower extremities somewhat violet in their whole extent, as also face ; abdomen still warm ; face, chest, limbs cold ; limbs very rigid ; fatty tissue not abundant ; muscles of natural color and consistence, not pitchy.

Abdomen. *Stomach* of moderate size and containing a small quantity of a greenish fluid in which are seen flakes of mucus, which is opaque and has somewhat the aspect of purulent mucus ; mucus also adhering to membrane beneath. Internal surface unequally reddish in its whole extent ; more particularly so along the small curvature than elsewhere ; mucous membrane injected in its own substance ; some imperfect granulations near the pylorus ; of its natural thickness and consistence in its whole extent, except in a small portion of the great cul-de-sac near the cardia, where it is slightly granulated, rather thicker than natural, and gives a strip of two lines only.

Small Intestines. Greyish and reddish externally ; containing an abundant, thick, greenish mucus in first half and a yellowish matter below. Mucous membrane more or less injected in its whole extent, most so in first three feet of ileum ; of its natural thickness ; generally of good consistence, giving a strip of six to eight lines ; but in last four or five feet of ileum, though the membrane is less injected there than above, the strip is only of two to four lines. Glands of Brunner seen in last four feet only, numerous, not so large as millet-seed, increasing in number and size as we approach cæcum. No patches of Peyer's glands observed. Mesenteric glands generally small, with two or three exceptions relative to some few corresponding to jejunum, which are red and of the size of a large bean.

Large Intestines of natural size ; containing a moderate quantity of a somewhat liquid, blueish white material, which is cloudy, and in which are seen numerous flakes of mucus, having itself much the aspect of mucus. Mucous membrane generally greyish, with some interruptions of a livid pinkish, and also at intervals some patches of a deeper red, which last are more numerous in ascending colon and in rectum ; in these spots there is a bright injection of the mucous membrane itself ; in the rectum are three unequally greenish patches, separated from the surrounding membrane by a narrow furrow and contrasting remarkably with its red color ; the membrane over these spots is not destroyed, but is rather thicker than in the neighbouring parts, greenish in its whole thickness, and has a gangrenous odor ; mucous membrane generally of its natural thickness and of good consistence, except in cæcum and commencement of colon, where it gives a strip of one to two lines only. Brunner's glands seen in whole extent of large intestines, of a small size, with a central point, and generally quite nearly approximated to each other.

Liver of natural size ; somewhat moist externally ; rather more red internally and containing rather more blood than common ; of its ordinary consistence. *Gall-Bladder* distended by a great quantity of blackish green bile.

Spleen rather large ; natural.

Kidneys slightly livid ; of natural size and consistence.

Bladder contains a little clear urine ; internal surface natural.

Thorax. Lungs. Left—partially adherent ; upper lobe of a bright red color, healthy ; lower of a dark red, heavy, containing rather more blood than usual, and some air, spleenified, not granulated. *Right*—adhesions less numerous ; both lobes equally heavy ; upper somewhat indurated, granulated, hepatized in a portion of its extent ; both lobes contain more blood than usual and but little air.

Pericardium rather dry and viscid externally; moist internally but not containing any serous fluid. *Heart* contains a large quantity of blood, of which a good portion is coagulated, especially a large mass in the left ventricle. The organ is rather large, owing to a slight hypertrophy of the left ventricle, whose parietics are firm and seven or eight lines thick.

Head. Veins of *dura mater* quite distended with blood; cerebral veins the same; considerable quantity of serous fluid beneath the arachnoid membrane; substance of the brain greatly congested, the bloody points being very numerous on the incised surface, rather soft; white substance has a slightly livid or violet hue.

Par Vagum of its natural thickness; of slightly violet tinge externally, which does not extend into its substance; of its natural consistence. *Superior Cervical Ganglia* healthy.

Semilunar Ganglion greyish, firm; natural.

Spinal Marrow not examined.

CASE XXVII.

St. Charles, 3. . . . Female Ward.

Under care of M. Louis.

LISVAT, æt. 56, seamstress, entered April 12th, 6 A. M. Well-nourished; lives in a dry room which has a stove in it; cough during winter and more lately some emaciation. Sick since the evening of 9th, when diarrhœa commenced, which has continued to this time, not greatly increasing; vomited her last food (soup, bread and cheese) in night; no vomiting on 10th, but frequent on 11th, at first bitter, and afterwards like water; loss of appetite, head-ache and ringing in ears on 10th; cramps since 11th, at 5 P. M. in lower extremities only; at the same time colic for the first time, and voice became feeble; scarcely any urine since morning of 11th; sight always natural;

went to bed for the first time yesterday, though too feeble to work since invasion; came to hospital on litter; could not descend stairs of her own house on foot.

April 12th, 10½ A. M. Countenance heavy, but not expressive of suffering; eyes very moist, not hollow; face not decidedly cold; some slight lividity of fingers, but warmth of extremities natural; folds of skin of neck slowly effaced after pinching. Tongue whitish, very moist, not cold; desires warm drinks; finds lemonade unpleasant; nausea after drinking; some pain constantly in hypogastrium, more in rest of abdomen; has just evacuated an injection with laudanum, not accompanied with any foreign material; cannot retain her evacuations, which flow like water from under her. Pulse 76, regular, feeble; no urine. Respiration not high, easy, 16; no feeling of oppression. Disposed to dose; sight and hearing good; no ringing in ears; intellect perfect; aphony almost complete.

Lemonade. ʒ iv. of flax-seed tea with ʒ ss. of laudanum for enema every two hours. Friction of lower extremities every half hour.

April 12th, 4 P. M. Knees raised; face cold, especially nose; lips slightly violet. Complains of colic in right side of abdomen; no pain at epigastrium. Pulse as this morning. Cramps less; less drowsy.

Mixture of ʒ ss. of alcohol in ʒ iv. of vehicle. Take a spoonful every two hours.

April 13th, 9 A. M. Has not taken her mixture. Constantly changing posture in bed, restless; face cold, not violet, nearly of natural color; eyes not very hollow; folds of skin of neck somewhat slowly effaced; extremities cool, breast and abdomen not so. Tongue moist, white at centre; thirst urgent for warm drinks; four or five vomitings slightly bitter since yesterday. Pulse extremely feeble, 68. Respiration 22, somewhat high; no feeling of oppression, but simply of feebleness. Sight at times a little obscure; hearing good; no aphony, voice scarcely enfeebled.

Tea for drink. Thirty leeches to epigastrium. Friction of lower extremities every half hour. $\mathfrak{z}\text{iv}$. of flax-seed enema with $\mathfrak{z}\text{i}$. of laudanum every two hours.

April 13th, 4 P. M. Arms cold, lower extremities cool; comatose, from which the patient was roused by a very loud tone only, this for the last hour; eyelids contracted. Tongue cool; no vomiting; two stools. Pulse 66, very feeble. Respiration somewhat unequal, not very frequent, at times high.

R. Sodæ Sulph. $\mathfrak{z}\text{i}$. ss. in a pint of water immediately as an enema.

Died on 13th, 11 P. M. Autopsy 14th, $10\frac{1}{2}$ A. M. $23\frac{1}{2}$ hours after death.

External appearances. Skeleton perfect, but not large; great rigidity of limbs; slight lividity of inner part of thighs, which are still warm, as also the trunk; much fat over abdomen and thorax, less in limbs; muscles of natural color and firmness.

Abdomen. *Stomach* of moderate size, contains a small quantity of a somewhat thick yellowish or greenish fluid. Internal surface greyish or pinkish grey, covered by a small quantity of mucus, and having a few scattered red injected spots; mucous membrane granulated near the pylorus and in the superior part of the great cul-de-sac; everywhere of its natural thickness and consistence.

Small Intestines—rather distended by gas; external surface for first four or five feet greyish, below of a livid red; containing above a moderate quantity of a greyish liquid with some flakes of mucus, which liquid is of a brownish red color below, like the lees of wine. Mucous membrane in two first feet dotted with grey points and pinkish; afterwards more red, becoming deeper towards ileum, and generally more marked upon the valvules than elsewhere; this color resides in the mucous and subjacent tissues; in last three feet internal surface reddish, greyish and greenish unequally; mucous membrane in whole extent, even in neighbourhood of duodenum, giving a strip of three to five lines in four first feet, from

one to three afterwards, without any coincidence of this diminution of consistence with any uniform change of color or thickness; generally less consistent in last three or four feet than elsewhere. No glands of Brunner seen. In four last feet of ileum are seen several patches in the situation and nearly of the form of those of Peyer, but ill-defined, of an unequal livid red, which disappears on their edges, not sensibly increased in thickness. Mesenteric glands small, natural.

Large Intestines rather large in first half, of natural size below, containing an abundant, turbid, reddish fluid, resembling in color the lees of wine, and mixed with white flakes of mucus. Mucous membrane of cæcum of a deep red color in half its circumference beyond the valve, and in the whole opposite to it; its thickness and consistence in these parts are natural, being the same as where the membrane is white; in the colon is seen the same red color disposed at intervals in longitudinal bands without any alteration of either thickness or consistence; in the last three feet of the intestines the red color is very much deeper, occupying the whole circumference, and most marked in the end of the descending colon and the sigmoid flexure, without any apparent alteration of the thickness or the consistence of the mucous membrane, which gives even in the darkest points a strip of twelve or fifteen lines, and is no less adherent to the subjacent tissue than is natural. Cellular tissue beneath injected, but less so than the mucous membrane.

Liver pale, externally and internally; containing less blood than usual; of good consistence. *Gall-bladder* filled with a dark colored bile.

Spleen small; healthy.

Kidneys healthy. *Bladder* small, containing a spoonful of a turbid whitish fluid, which is slightly viscid; mucous membrane natural.

Uterus small, containing a small quantity of a dark red fluid; walls less pale than usual.

Thorax. *Left*—partial adhesions posteriorly; upper

lobe rather large and very slightly emphysematous; internally of a violet red color; more dense than common, though neither hepatized, spleenified, nor engorged with blood; lower lobe natural. *Right*—partial adhesions laterally and posteriorly; upper lobe of same color, form and appearance as left, but containing a little more blood and a little heavier. *Larynx* natural; epiglottis healthy.

Pericardium natural, containing no serous fluid. *Heart* of natural size; contains a great quantity of liquid black blood, in which are seen several amorphous coagula; in right ventricle is one flattened, fibrinous coagulum somewhat adherent to the parietes; tissue of heart of natural thickness and consistence.

Head. Considerable quantity of blood on external surface of dura mater; some infiltration of serous fluid under the arachnoid; pia mater moderately injected; cerebral veins somewhat distended with blood. Cerebral substance of good consistence and moderately injected. Cortical substance and corpora striata of natural color; medullary substance marked with spots of a lilac color, and dotted on incision with numerous violet points, at which a very minute drop of blood escapes slowly; 3 ss. of clear serous fluid in each lateral ventricle. *Pons Varolii*, and cortical substance of *cerebellum* slightly violet, but of natural firmness.

Semilunar Ganglion small, greyish, very firm and coherent.

Par Vagum and *Cervical Ganglia* healthy.

Spinal Marrow not examined.

CASE XXVIII.

St. Athanase, 29. . . . Male Ward.

Under care of M. Andral.

PERROT, æt. 50, street-merchant, well nourished and habitually enjoying good health. Was perfectly well till

6th, 5 A. M., when a watery diarrhœa commenced, not preceded by chill nor accompanied by either vomiting or cramps; kept at work on 6th and 7th, though he had ten or twelve stools each day, having his usual appetite and eating as usual on these two days; during 8th colic was added to diarrhœa; supped as common last night (8th), but did not sleep well; and at 5 A. M. this morning (9th), without any preceding chill, was suddenly taken with cramps and vomiting, which have both continued to present time, severe; at the same time aphony and no urine since.

April 9th, 7 P. M. Eyes sunken and encircled by a dark ring; face cold; lips violet; hands cool and wrinkled; strength not entirely gone; has legs drawn up in bed, and uses arms with freedom. Tongue white, moist; thirst urgent; abdomen retracted, pain over its whole surface increased on pressure, especially severe at epigastrium, where the pulsation of the aorta is very distinctly felt; frequent nausea and vomiting; several watery stools with colic. Pulse 104, small, sometimes escaping under finger. Cramps. Twenty-five leeches were applied to the anus at 2 P. M., since which he does not feel much, if any better.

April 10th, 6½ A. M. Has not slept. Face cool, but less expressive of suffering and exhaustion; hands slightly cool, less wrinkled. Tongue white, moist, warm; thirst; still some pain at epigastrium; vomits after drinking; no stool. Pulse 108, stronger, fuller; no urine. Aphony; cramps less severe.

Lemonade. Ice in morsels. Cataplasm to abdomen.

April 10th, 6 P. M. Has taken the ice two or three times only and in very small quantity. Has slept well during day; skin of a good temperature. Tongue natural. Continues to vomit his drinks; five or six vomitings of a clear, green liquid; no stool nor tenesmus; pain at epigastrium continues. Pulse 116, small; no urine. Countenance is calm; says he feels better; yet lips and hands are still violet, and aphony continues. Cramps slight.

April 11th, 7½ A. M. Tongue moist, slightly yellowish coat; thirst; pain at epigastrium and vomiting less; no tenesmus; no stool; hiccough. Pulse 96; no urine. No cramps.

Blister of three inches diameter to epigastrium. Sinapisms to legs.

April 11th, 6 P. M. Tongue moist; thirst not urgent; hiccough; vomiting frequent but not copious; no stool; pain still exists at epigastrium, but very slight. Pulse 80; hands cool; trunk warm; no urine. No cramps.

April 12th, 8 A. M. Has slept some during night; says he feels stronger. Otherwise the same.

April 12th, 5 P. M. Hiccough still continues; no urine. Alimentary canal the same. Pulse 90.

April 13th, Noon. Had 3 iv. of simple enema with gr. xv. of sulphate of quinine last night which was at once evacuated. Hiccough continues. Otherwise the same, except a little urine in night. Pulse 84, small. Seems to grow more feeble.

April 14th, 7 A. M. Great agitation; loud, troubled, difficult respiration; face pale, with eyes fixed upwards; picks at bed-clothes with fingers; delirious; attendants say he has been so since night of 12th; no sleep in night. Tongue dry, with brownish coat; no vomiting; no stool. Pulse imperceptible; no urine.

Died on 14th, 11 A. M. No autopsy.

CASE XXIX.

St. Athanase, 29. . . . Male Ward.

Under care of M. Andral.

A * * * *, mason, æt. 79; no work lately, but says he has been sufficiently nourished; chronic catarrh for a long time, and lately in hospital for dropsy which has now disappeared. Cramps in legs since 31st ult. without any other symptom; these have continued, and to-day

(5th) more severe than before; on April 3d, at night, diarrhœa suddenly, (five or six stools during night) less on day of 4th, but again increasing during night, watery; no vomiting till this morning (5th).

April 5th, 9 A. M. has just entered; eyes sunken and encircled by a dark ring; no injection of conjunctivæ; pupils natural; face of a dirty yellow color; without expression of suffering; nose and cheeks cold; says feet are not cold. Tongue smooth, of a pinkish color; thirst; loss of appetite; no nausea; no pain in abdomen. Pulse 80, pretty full, easily felt; epistaxis during night; says some urine this morning, but scanty. Respiration 24, moderately costal. Head-ache; voice altered, weak.

Lemonade with syrup of gum-arabic. Barley water. Sinapism to lower extremities.

April 5th, 6 $\frac{1}{4}$ P. M. Tongue smooth and cool, pinkish; no vomiting; several watery stools without any colic. Says he passes a little urine at his stools. Much agitation; cramps severe and almost constant in both legs.

Water or some simple vehicle \odot i.

Ratanhia 3 iii.

Syrup of Quinces 3 ii.

Make a decoction, of which let him take one half a glass every hour.

April 6th, 9 A. M. Has taken only three fourths of decoction. Nose and cheeks cold; skin generally cool. Tongue moist and cool; slight vomiting during night; several stools also during night, and one this morning with colic. Pulse 84, very small; says he has passed a little urine (doubtful). Cramps less severe.

Continue decoction.

April 6th, 6 P. M. vomits all that he drinks; several stools; otherwise the same.

Barley water for drink.

April 7th, 7 A. M. Tongue red and dry; no vomiting; several stools. Pulse frequent and small.

Same prescription.

April 8th, 7½ A. M. face cold ; total insensibility ; does not appear to hear questions. No pulse.

Sinapisms to lower extremities.

Died April 8th, 8 A. M. No autopsy.

CASE XXX.

St. Paul, 17. . . . Male Ward.

Under care of M. Louis.

GALOSSIN, æt. 69, cooper, entered April 19th, 9½ A. M. Insufficiently nourished ; sometimes gets scarcely any food for a whole day, but occasionally commits excess with wine ; has passed the winter in a cold, moist cellar. Sick since 14th, but much more so this morning (19th) 3 A. M. On 14th, diarrhœa commenced and has continued (fifteen stools daily) without pain in abdomen ; appetite was at once diminished ; this morning (3 A. M.) severe head-ache, vomiting and cramps at first in lower extremities only, afterwards in upper likewise, though less severe ; urine excessively scanty since that time, and not abundant on the preceding days ; aphony almost complete since this morning ; sense of oppression at debut, less now ; was cold during night without any trembling and no sweat ; sight 'black and red,' as he says, during night.

April 19th, 11 A. M. Nose very cool, cheeks less so ; lips violet ; neck of its natural temperature, folds of its skin very slowly effaced ; fore-arms rather cool. Tongue moist, whitish, of good temperature ; thirst urgent ; asks for cool drinks ; has vomited since arrival abundantly of a reddened liquid with several flakes of mucus at the bottom, the color owing to a moderate quantity of unmixed wine taken just before entrance ; no sense of oppression, nor pain at epigastrium ; no stool. Pulse 72, small, feeble ; no urine since entrance. Respiration 18, rather high ; breath warm. Considerable head-ache ; cramps frequent.

Friction every half hour. Sinapisms to lower extremities.

Lemonade with ice. \bar{z} iv. of flax-seed enema with \bar{z} i. of laudanum, four times in eight hours.

April 19th, 4½ P. M. Sinapisms large (eighty inches surface each) just removed from thighs; the skin is considerably reddened; the patient seems to suffer extremely from pain in the part, indicated by great anxiety and agitation. Tongue cool, whitish; thirst very urgent; no nausea after drinking; pain in abdomen; has twice vomited, the first time reddish, the second a liquid containing an abundance of mucus; two stools of a puriform, greenish or greyish liquid. Pulse 80, very small, regular; hands cool; temperature of trunk nearly natural; urine excessively scanty. Respiration frequent, proportioned to anxiety. Cramps have increased in spite of frequent frictions.

Continue friction. Emollient cataplasm to thighs in half an hour, if the pain from sinapisms continue.

April 20th, 8½ A. M. ceased to complain of pain five minutes after visit, although it still continues somewhat, the skin being still red, hard and slightly prominent. Says he feels better than yesterday; folds of skin of neck still slowly effaced; nose a little cool; limbs and trunk of their natural temperature. Tongue whitish, moist, cool; no pain in abdomen which is contracted; hiccough frequent since morning; no vomiting; numerous very small stools during night, composed of a yellowish or greenish clear liquid, at the bottom of which is a certain quantity of mucus and some yellow masses resembling fæces. Pulse 80, regular; urine excessively scanty. Respiration 14 or 16, occasionally high. Slight head-ache; is disposed to sleep.

Seltzer water. Two flax-seed enemata.

April 21st, 4 P. M. Face warm, except nose, which is cool; body generally of its natural temperature; air of great prostration, answers with great effort; thighs as red as this morning, painful on pressure, after which the

impression of fingers remains, (œdematous.) Tongue as this morning; no pain at epigastrium, but little at umbilicus; no nausea, nor vomiting; two yellow, liquid stools, in which is an abundance of mucous flakes. Pulse 80, rather small and feeble; no urine. Respiration 22, somewhat high.

Antispasmodic mixture, 3 v.
 Alcohol, 5 ii.
 Syrup of orange peel, 3 i. M.

Take a spoonful every hour.

April 21st, 8 A. M. Left cheek and nose cool; temperature perhaps a little higher than common; folds of the skin of neck slowly effaced; redness of thighs less than this morning, though skin still a little hard and painful on pressure. Tongue whitish at edges, yellowish at centre, slightly moist; thirst; oppression at epigastrium, but no pain in abdomen; no stool. Pulse 84, regular, feeble; no urine. Respiration 32, rather high. No head-ache; voice less feeble; mind rather obscure, without delirium; tendency to dosing.

Solution of syrup of gum. Antispasmodic mixture with æther.

A little diluted broth. Friction.

Died April 21st, 3¼ P. M. Autopsy April 22d, 8½ A. M. 17 hours after death.

External appearances. Skeleton well-formed; universal and complete coldness; some lividity of face and thighs; skin corresponding to sinapisms, evidently thicker and firmer than adjacent parts; limbs quite rigid.

Abdomen. *Stomach* almost double its ordinary size; contains a considerable quantity of a thick, light yellow liquid, in which there is an abundance of mucus, a portion of which adheres closely to a small part of the great curvature three inches from the pylorus. Anterior face of stomach of a somewhat deep livid pink; the same color over a slight extent of posterior face, extending to within two inches of the small curvature; of a much slighter pink in part of great cul-de-sac, where are seen numerous little

opaque white points of various forms, largest not more than half a line in diameter, not evidently projecting above the surface ; posterior face granulated, also a portion of anterior face, though less so ; very numerous bright red points, owing to minute injection over the whole extent of the small curvature, especially in the upper half, where they are confluent for the breadth of two or three inches ; mucous membrane of its natural thickness, giving strips of two to three lines in the great cul-de-sac, four to eight along the great curvature, and ten to twelve along the small.

Small Intestines. Somewhat distended ; externally reddish ; containing a considerable quantity of an opaque yellowish liquid, which is not very fluid in the two first feet, but becomes more so below, with an abundance of mucus of the same color ; some mucus also adherent to the internal surface, which is paler than the external. Mucous membrane white, very rarely and very minutely injected, subjacent cellular tissue rather more so ; mucous membrane rather thicker than natural, giving strips of two to five lines only, except in last two feet, where they are from eight to ten. Brunner's glands seen in last five feet, larger towards cæcum, where they are of the size of millet-seed, and about a line distant from each other. Peyer's glands not very apparent, of a greyish color, natural. Mesenteric glands larger than common, of the size of a large bean, and most of them of a violet red color internally.

Large Intestines of very moderate size, containing a somewhat thick, yellow material, not fluid, of a fæcal odor, with very little mucus. Cæcum and first half of ascending colon generally of a greyish color, with several deep red spots ; rest of intestine whitish or greyish. Mucous membrane of its ordinary thickness, and giving a strip of two to three lines only.

Liver of its ordinary size ; firm, rather pale.

Spleen rather small, natural.

Kidneys rather large ; natural ; no liquid in infundibu-

la. *Bladder* small; its walls are two or three lines thick, firm; containing a quantity of a turbid, whitish liquid.

Thorax. *Heart* large; right auricle distended by a considerable quantity of blood and one black coagulum; left ventricle greatly hypertrophied, its walls being eight lines thick in most of their circumference, and an inch or more at some points, where the columnæ are confounded with the tissue of the organ, which is evidently firmer and more dense than usual. *Aorta* contains a great quantity of liquid blood.

Lungs. In the left pleura is about 3i. of clear serous fluid; left lung free; upper lobe light, containing however in its lower part a considerable quantity of frothy blood; lower lobe heavy, rather firm, internally of a brownish red, slightly granulated, hepatized; right lung adherent universally to pleura; heavier than left, of a brighter red color; upper lobe light, not engorged; middle and lower engorged in some parts, and evidently hepatized in others.

Head. *Dura mater* externally covered with a great quantity of blood. *Arachnoid* very moist, everywhere somewhat opaque; universal and very considerable infiltration beneath it; *pia mater* very moderately injected; brain very moist, very slightly injected, quite firm; grey substance paler than natural; 3i. ss. of clear serous fluid in each of the lateral ventricles; *corpora striata* of their ordinary color. *Cerebellum*, *pons Varolii*, and *medulla oblongata* natural.

Par Vagum and *Cervical Ganglia* natural.

Semilunar and *thoracic ganglia* healthy; greyish, of moderate size and good consistence.

Medulla Spinalis, of its natural size and consistence; neurilemma very slightly injected, but of its natural color and consistence.

Here we see an instance of a double and latent pneumonia occurring after reaction was established. This would not have passed undiscovered had the stethoscope been employed; but in the midst of such suffering and

severity of symptoms it was not for a moment thought of. In looking back to the details of the case, it will be seen that there was no symptom which could be attributed to pulmonic inflammation before the evening of the 20th, when the frequency of the respiration was considerably increased.

CLASS II.

CASES IN WHICH THERE WAS REACTION.

CASE XXXI.

St. Athanase, 30. . . . Male Ward.

Under care of M. Andral.

BRANDT, æt. 42, mechanic, entered April 9th, 6 P. M. Well nourished, robust, says he has never been sick in his life. Loss of appetite for two or three weeks; diarrhœa with colic preceded by chill and trembling, and followed by heat and sweat on 2d, 10 A. M.; diarrhœa continued alone until 7th, when there occurred some cramps, which became much more severe on 9th, at 2 P. M. On this last day he begun to vomit a greenish yellow, bitter liquid; vomiting accompanied with a severe pain at the epigastrium; and at the same time he was very cold, blue and feeble; came to the hospital, however, on foot.

April 10th, 6½ A. M. Now, eyes very hollow and encircled with a black ring; countenance calm; face somewhat livid; lips of a deep violet; nose cold; hands violet and cool. Tongue white; pain at epigastrium; also slight pain about umbilicus; no stool since last evening; pulse 112, small; little urine yesterday, none to-day;

Respiration 26, costal; intense head-ache; ringing in ears; voice hoarse since yesterday.

Thirty leeches to epigastrium. Cataplasm to abdomen after leeches. Ice in morsels. Gum water for drink.

April 10th, 6½ P. M. Has taken very little ice, and does not find it pleasant. Same expression of face; nose cold; tongue natural; thirst not great; vomiting less: pain at epigastrium much diminished, very slight; one stool; Pulse 112, small; urine sufficiently abundant. Cramps in calves of legs and in feet not severe.

Solution of syrup of gum.

April 11th, 7½ A. M. Face the same; tongue natural; anorexy; thirst; no pain in abdomen; vomiting of a glairy matter; no stool; Pulse 80; urine abundant. Complains of head-ache; cramps slight during night.

April 12th, 8 A. M. Has slept well. Tongue white, moist, natural; very slight pain at epigastrium; no nausea, nor vomiting; one stool without colic, not very liquid; pulse natural, but rather small; urine abundant; respiration still slightly embarrassed, but much less so; voice natural; no cramps.

April 12th, 6 P. M. No vomiting; one stool, not liquid; urine; no cramps.

April 13th, Noon. Had broth yesterday and to-day. Convalescent. No return of symptoms.

CASE XXXII.

St. Rosaire, 24. . . . Female Ward.

Under care of M. Andral.

PREVOT, æt. 24, house-servant, well nourished and ordinarily in good health. On April 9th, after having passed several nights with her master who was sick, had diarrhœa (twelve stools), soon followed by vomiting of a green liquid and by cramps the same evening; these last continue.

April 10th, 7 $\frac{1}{2}$ A. M. Now, eyes somewhat sunken and encircled with a black ring; face warm; nose cool; skin generally warm; says she has not been cold; tongue moist, very white, soft to touch; mouth clammy. She complains of sore throat and of pain in epigastrium much increased on pressure, rest of abdomen also painful. She has nausea after drinking, and had severe vomiting and diarrhoea during night. Pulse 120; no urine since yesterday. Respiration 28, very costal. Flying pains in chest; cramps severe.

Thirty leeches to epigastrium. Ice in morsels. Gum-water for drink. Cataplasm to abdomen.

Friction with essence of turpentine.

April 10th, 6 $\frac{1}{2}$ P. M. Face cool; tongue white, moist; thirst urgent; vomiting of a green liquid; pain at epigastrium; five or six stools without colic; pulse 80, small; no urine; aphony incomplete; complains of pain in lower part of left chest, increased on full inspiration; cramps very slight.

Same drinks.

April 11th, 8 A. M. Tongue white, natural; thirst; acute pain about umbilicus; rest of abdomen not painful; vomiting frequent in night of a white liquid; five or six stools with colic. Pulse 100; skin warm; urine twice. Still complains of pain low in left chest; respiratory murmur there natural. No cramps.

R. Pulv. Ipecac. gr. xxx. in two doses, at an hour's interval.

April 12th, 8 A. M. Vomited after each dose; slept well; countenance natural; tongue moist, white; thirst not urgent; cessation of pain at epigastrium; no vomiting since midnight; eight or ten stools yesterday, none today; pulse natural; urine; voice less hoarse; no cramps since 10th.

April 12th, 6 P. M. No pain anywhere; tongue natural; thirst less; no nausea, nor vomiting; no stool; no pain at epigastrium; says she has appetite. Pulse 76; skin not hot; urine. No cramps.

April 13th, complains of hunger. Convalescent.

CASE XXXIII.

St. Paul, 8. . . . Male Ward.

Under care of M. Louis.

MICHEL, æt. 25, ward-tender at La Pitié for the last four days, well nourished during winter, of moderate height and pretty strong constitution; went to bed yesterday (11th,) at 9 P. M. and has kept there since, having continued his service up to that time. Diarrhœa since noon of 10th, (three or four stools the first day, seven or eight the next and ten last night of a whitish watery liquid); great rumbling in bowels yesterday, and more of it last night, without any pain; appetite good up to last evening, though he ate less at supper than usual; slight head-ache yesterday morning, but no feebleness till evening; nausea during night, and this morning has vomited his last night's supper; no cramps.

April 12th, 10 A. M. Countenance natural, eyes not hollow, no expression of suffering, nor of prostration; says he feels feeble; temperature natural, nose only cool; tongue moist, whitish, villous, pinkish at its edges, of natural temperature; thirst moderate, indifferent as to temperature of drinks; anorexy, but no disgust at food; no pain in abdomen, which is slightly tympanitic; three stools within an hour, the last consisting of five or six ounces of turbid, greyish or yellowish liquid, in which float an abundance of small parcels, like broken boiled rice. Pulse 76, regular, sufficiently full; heat of skin moderate, agreeable; urine easy. Respiration easy, neither frequent, nor high. A little head-ache; some ringing in ears; no cramps.

Lemonade. Four ounces of flax-seed tea with a scruple of laudanum for an enema. Friction.

April 12th, 4 P. M. Face seems a little emaciated since morning; tongue slightly violet; asks for cool drinks;

twice vomited lemonade, not bitter; six stools; feels a relief after vomiting, and thinks himself about the same as in the morning. Some slight, momentary cramps.

April 13th, 7½ A. M. Face emaciated, a little cool; sensation of fulness at epigastrium; eight or nine vomitings mostly of drink, at the bottom of which is a little mucus; numerous stools during night; pulse 96; limbs warm; slight cramps.

V. S. ad 3x. Four ounces of flax-seed tea with a scruple of laudanum for an enema.

April 13th, 5½ P. M. Says he feels better; the blood which flowed in a stream has now the consistence of currant jelly, without either serous fluid or buff. Countenance and temperature natural; tongue whitish and moist; thirst urgent; three vomitings; six stools, the last greenish, and, except in color, resembles in aspect and consistence the tomato-sauce. Pulse 100; urine.

April 14th, 8 A. M. Good sleep in night; countenance natural; feels well. No nausea, nor vomiting; three stools, none since midnight. Pulse still accelerated, but natural; no pain in head or abdomen; no cramps.

Lemonade with ice. Enema as yesterday.

April 15th, says he is well; sleep good; face natural; tongue a little white; no nausea, nor vomiting; no stool; pulse a little accelerated; no cramps.

Lemonade. A little broth.

April 16th, 7 A. M. Took broth with pleasure; tongue whitish, moist; no nausea, nor vomiting; no stool; appetite; pulse 76, not very full; no sweat; urine abundant.

Lemonade. Enema of flax-seed tea. A little rice.

April 17th, 8 A. M. Continues better; has decided appetite; sleep good; face, alimentary canal, circulation, respiration natural. Convalescent.

A little bread and a glass of wine.

CASE XXXIV.

St. Charles, 6. . . . Female Ward.

Under care of M. Louis.

NOZON, æt. 58, street-merchant, widow, entered April 18th, 11 A. M. Nourishment almost exclusively vegetable, but ordinarily sufficient; hernia for many years. Catarrh pretty severe for the last month, and extinction of voice almost complete at intervals. Eight days since diarrhœa lasting four days, with some diminution of appetite; for the four succeeding days the appetite was still diminished, but the diarrhœa checked, her usual daily evacuations continuing; she continued at her work during this time. Last evening (17th) at 9 P. M. dizziness; return of diarrhœa; (20 stools since;) cramps, which have gone on increasing and are now severe, at first in lower, now also in upper extremities; severe and frequent colic; great anxiety and restlessness.

April 18th, 5½ P. M. Countenance expressive of great suffering from very severe cramps at this moment. Eyes encircled by a black ring, and somewhat hollow; some wrinkles on sides of face; cheeks somewhat livid, quite cool; nose cold; folds of skin on neck and fore-arms very slowly effaced; fore-arms a little livid, cool; arms also cool, but less so than fore-arms; tongue violet on edges, villous with slight yellowish coat, cool; thirst urgent; had pain about umbilicus this morning, none now; oppression at epigastrium for eight days, but more marked since last evening; vomits a green liquid in which is seen a little mucus; several stools since entrance; pulse 124, very small and feeble, but counted without much difficulty; no urine since morning; respiration rather high; head-ache; hearing good; sight rather obscure; aphony complete; cramps very severe.

Lemonade with ice. For enema four ounces of flax-seed tea with 3 i. of laudanum three times. Friction. Sinapisms to thighs.

April 19th, 10 A. M. Retained two enemata ten or fifteen minutes each; has had frequent frictions, after which the cramps were greatly diminished, and she got some sleep. Now, expression of face natural; vivacity in speech and motions; eyes a little sunken; heat rather greater than last evening; tongue dry at centre, a little red, but white at edges; thirst; desires cool, sweet drinks; nausea; feeling of fatigue and pain at epigastrium from her frequent vomiting; otherwise no pain in abdomen, though a little in the anterior part of the right false ribs; one green vomiting last evening, as she says, with great relief; that has been since followed by five or six vomitings greenish, bitter; ten stools, sometimes involuntary, without colic; pulse 100; is not sure whether she has passed urine. Says she has some oppression at the chest. Heaviness in head; ringing in ears; sight still a little obscure; voice less feeble; no pain in limbs; cramps in lower extremities from time to time, generally slight; but occasionally sufficient to draw a cry from the patient; lively, garrulous.

Mixture of syrup of gum. Seltzer water. Enemata of four ounces of flax-seed tea, with two scruples of laudanum in each.

April 19th, 4 P. M. Cheeks flushed; some heat of skin; vivacity continues; tongue dry, brownish at centre, white at sides; thirst less; no pain in abdomen, but still a little oppression; three vomitings of a green liquid, in the bottom of which are seen numerous thin flakes of light grass-green mucus; thinks she should not vomit if she did not drink. Pulse 100; respiration 16, equal, not high. Head-ache as this morning; no ringing in ears; sight better.

V. S. ad $\frac{3}{4}$ viii. Cataplasm to epigastrium. Seltzer water. Mixture of syrup of gum.

April 20th, 8 A. M. Relief after V. S. and less oppression since; tranquil sleep at night; face flushed, much more animated (says she has naturally a good deal of color;) folds of skin of neck still rather slowly effaced;

heat and much sweat during night. Tongue white, moist, warm; feeling of swelling at epigastrium; rumbling in bowels less; two vomitings green, once immediately and once a long time after drinking; two small stools; pulse 88, rather full; heat a little elevated; urine once; slight head-ache.

Mixture of syrup of gum. Seltzer water. Four ounces of flax-seed tea for enema twice. A little diluted broth. Antispasmodic mixture with $\frac{3}{4}$ i. of infusion of poppy-heads.

April 20th, 3½ P. M. Face more flushed and hot; eyes heavy; constant disposition to sleep. Tongue dry, yellow or brown at centre, white and moist elsewhere; no stool; thirst less; pulse 88, regular, full; urine twice, very scanty; head heavy; head-ache increased; sight good; no ringing in ears; few slight cramps in fingers.

Twelve leeches to neck. Enema of flax-seed tea.

April 21st, 8 A. M. Felt much better immediately after leeches. Tongue moist, natural; no thirst; appetite; no nausea, nor vomiting; no rumbling in bowels, no stool. Pulse 72; heat natural; some sweat during night. Still a very little oppression; a little heaviness in forehead; mind and expression natural.

Drinks as before. A little broth and rice.

April 21st, 4 P. M. Feels better; countenance natural; tongue nearly clean; no thirst; pulse 76; heat slightly elevated; urine, but with some difficulty. Scarcely any unpleasant feeling in head.

April 22d. Head the same. No vomiting; no stools, nor cramps.

The convalescence progressed without any accident; the appetite and strength and powers of digestion were re-established, and the patient left the hospital May 2d, well.

CASE XXXV.

St. Paul, 21. . . . Male Ward.

Under care of M. Louis.

LECOMTE, æt. 65, day-laborer, entered April 18th, 10 A. M. Well nourished during the winter, lives in a comfortable and warm room; commits no excesses. Has had a little cough and dyspnœa for eight or ten days; but decidedly sick since 16th, 2 P. M.; diminution of appetite since 15th. At debut had for 24 hours alternate chills and sweats, especially on face; these were accompanied with diarrhœa and colic; had sense of oppression at epigastrium, but no positive pain; also feeling of heat in same region; thirst urgent; no nausea, nor vomiting; urine abundant; voice feeble from the first; great oppression, often obliging him to rise up when coughing; cough has increased the last two days; has kept bed since yesterday, and came on litter to hospital. Has not had cramps.

April 18th, 5 P. M. face moderately colored, warm; heat of surface nearly natural; folds of skin of neck quickly effaced; tongue moist, natural; prefers cool drinks; no pain in abdomen, except on coughing; no stool since entrance. Pulse 72, rather full; urine natural. Respiration 44, abdominal; some few frothy sputa; cough at intervals; feeling of oppression. Mind clear; senses good; no cramps.

Lemonade. Four ounces of flax-seed tea with six drops of laudanum twice, for enema. V. S. ad. $\frac{3}{4}$ x.

April 19th, 9 A. M. Considerable relief after bleeding and less oppression since. The blood is buffed. Has slept well, and sweated copiously during the night. Tongue moist, with white coat at centre; thirst urgent; no pain in abdomen; no nausea, nor vomiting. Pulse 88, rather full and hard; slight moisture and heat of skin. Respiration 26; some few sputa surmounted by a thin

layer of bright red blood; on percussion the sound is very loud behind on the left side, where the murmur of respiration is very feeble; on this same side, also behind, is heard a sub-crepitous râle, none on the right. (He has had cough and dyspnœa for some years. Emphysema of left lung.)

V. S. ad. $\frac{3}{4}$ x. Syrup of violets.

April 19th, 5 P. M. Dyspnœa less after bleeding. Tongue as before; no nausea, nor vomiting; no stool. Pulse 80, hard, rather full; heat somewhat elevated; urine copious. Respiration 26; says he has still some dyspnœa, but no pain in the chest. Cough.

April 20—24. No farther symptoms. Appetite returned; took food without inconvenience, and at last date was convalescent.

This case scarcely deserves to be called cholera. The most essential disease was in the chest; a slight inflammation of the lungs had been induced in a subject, whose lungs were already emphysematous. But this pulmonic affection, unlike ordinary pneumonia, was accompanied, perhaps we should say preceded, by a very considerable diarrhœa, which we cannot but attribute to the influence of the epidemic cause. Under this view, the case is worthy of attention.

CASE XXXVI.

St. Paul, 8. Male Ward.

Under care of M. Louis.

GARION, æt. 14, entered April 20th, 6 A. M. Is habitually well and well nourished. Sick since 18th, 6 A. M. for the two preceding days diarrhœa, (five or six stools daily,) without colic; diminution of appetite; but has worked as usual. On 18th, the disease commenced with nausea, pains over whole abdomen, colic which continues and is sometimes very acute, without any sensation of heat or cold

in the abdomen ; he nevertheless continued to work yesterday and the day before ; easily resisted going to stool, but has had more than six stools a day, the last two days ; thirst sometimes urgent ; has taken food, though less than common up to to-day ; sleep has been good ; strength not greatly prostrated, walked to hospital ; urine has not been suppressed ; no cramps.

April 20th, 9 A. M. Countenance natural ; cheeks of good color, not cool ; eyes not sunken and not encircled by any black ring ; folds of skin of neck quickly effaced ; upper extremities of their natural temperature. Tongue moist, natural at edges, a little white at centre ; thirst not urgent ; no nausea after drinking, and none since entrance ; no pain in abdomen ; no stool since 5 A. M. Pulse 78, natural ; urine free. Respiration 18, not high. Says his voice is slightly hoarse.

Lemonade. Four ounces of flax-seed tea with ten drops of laudanum for enema, twice. Friction.

It is useless to continue a detailed account of this case ; he had a few very slight cramps on the morning of the 20th, but the abdominal symptoms lessened ; nothing unfavorable occurred to interrupt the convalescence, which was perfectly established in two days.

This case is given simply as a specimen of the disease under the very slightest form, which requires medical aid.

CASE XXXVII.

St. Athanase, 27. Male Ward.

Under care of M. Andral.

MAINTENCE, æt. 32, shoemaker, entered April 6th, 8 P. M. Says is well nourished and habitually in good health. About eight days since committed excess in drink, being previously in perfectly good health. Five days before entrance, i. e. on 2d had diarrhœa, which at

first did not prevent his working. Yesterday, (5th), while at stool, at 11 A. M. fell from feebleness; vomiting came on at 5 P. M., as also cramps. These have not been very severe, but have affected both upper and lower extremities. No chill at the commencement.

April 7th, 6½ A. M. Eyes slightly sunken, encircled with a black ring, with natural expression otherwise; nose cold; face somewhat livid, but not cold; hands slightly violet; skin generally warm. Tongue pinkish, moist, with a white coat; thirst; no pain in abdomen; no vomiting; no stools since 4 A. M., though very frequent during night. Pulse 96, small; urine five or six times yesterday, none to-day. Respiration 24, slightly costal. Mind quite lively; voice strong but hoarse; cramps continue. (At entrance had friction upon epigastrium with tr. canthar. and for an enema half a pint of infusion of poppy-heads, with 3 ss. of extr. catechu.)

Rub limbs with tr. canthar.

Give two doses of ipecac each gr. xii. with an hour's interval. Lemonade.

April 7th, 6 P. M. Copious vomiting after first dose, less after second; since then slight watery vomiting occasionally. Eyes still a little sunken and encircled with a black ring. Tongue natural; no stool. Pulse 84, well developed; skin warm; urine sufficient. Cramps slight; much relieved by friction.

Lemonade.

April 8th, 7 A. M. Still black round the eyes; otherwise expression of face natural; has slept well. Tongue natural; no pain at epigastrium; no vomiting; one stool, less liquid; appetite. Pulse 76, well developed; urine; natural heat everywhere. Respiration 18, natural; voice still hoarse; no cramps.

Lemonade. A little broth.

April 8th, 6. P. M. No vomiting; no stool. Pulse not frequent; urine four times. Slight cramps.

April 9th, 9 A. M. Convalescent. He remained in the hospital till the 11th, his appetite and food constantly increasing without any accident.

CASE XXXVIII.

St. Athanase, 25. . . . Male Ward.

Under care of M. Andral.

CLAMADREN, æt. 33, wharfinger, habitually well nourished and in good health, but commits occasional excess in drinking; was taken sick at 7 A. M., April the 1st, and entered in the course of the same day: general cramps, abundant vomiting and diarrhœa; the first stools resembled coffee-grounds, the others had the aspect of whey, not freed from its caseous matter. He had been drinking milk during the day.

April 2d, 9 A. M. Eyes sunken and encircled by a dark ring; face slightly livid; lips violet; nose and cheeks cold; absence of heat over whole surface of body, which was not however very cold. Tongue moist, not red at the edges, covered with a yellowish coat; anorexy; thirst urgent since invasion; prefers cold drinks: abdomen retracted, slightly painful with and without pressure; stools yellow and liquid, burning somewhat in their passage. Pulse 124, very small, scarcely perceptible. Respiration 24, very costal; murmur of respiration natural. No urine since 8 A. M. of 1st. Intellect clear; aphony; slight cramps in some of the fingers; much more severe in the lower extremities.

Let him take for drink infus. of tea and lemonade with the syr. of gum.

Spoonful of following mixture every hour.

R. Aq. Tiliæ } $\bar{a} \bar{a}$
 " Menth } $\bar{3} \text{iii.}$

Syr. Simp. $\bar{3} \text{i.}$

Tr. Opii. $\bar{3} \text{iii.}$ M.

April 2d, 3 P. M. Eyes yet more sunken, turned upwards; nose covered with a cold clammy sweat; cheeks dry and cool; hands and feet cold; chest sufficiently warm. Tongue moist, cool; vomiting continues; constant watery

stools in bed. Pulse excessively small, felt only from time to time. Respiration calm. No urine. Cramps less severe.

April 3d, 9 A. M. Eyes as before, but closed ; slight injection of the right conjunctiva ; more color of face than yesterday ; cheeks and forehead warm ; skin generally hot. Tongue white and moist ; thirst continues ; still prefers cold drinks ; abdomen soft ; vomiting slight ; several stools during night, still has stools under him. Pulse 88, more fully developed. Respiration 12 ; complains of a little dyspnoea. No urine. Intellect clear ; aphony less ; some very slight cramps during night in legs.

Lemonade with syrup of gum for drink.

Mixture as follows :

R. Aq. Tiliæ. ʒ iv.

Syr. Gum. ʒ i.

Tr. Opii. gtts. xxx.

April 3d, 5 P. M. Has taken only two spoonfuls of mixture ; very black round the eyes, especially the left ; slight injection of both conjunctivæ ; good color of whole skin, which is no longer violet ; says he is hot. Tongue covered with a thick, whitish coat ; still urgent for cold drinks ; no pain in abdomen ; has had several watery vomitings, and says he should now vomit if he drank freely ; three or four watery stools preceded by colic pains. Pulse 120, regular, still small ; hands of an agreeable temperature. Disposed to sleep ; aphony less ; no cramps since morning ; moves in the bed freely. No urine.

April 4th, 8 A. M. Slept during night ; face deeply colored. Tongue white ; thirst urgent ; says he has appetite ; pain in loins ; has vomited very little ; several stools. Pulse 84, small, but perceptible ; hands cool. No urine.

Lemonade with syrup of gum. A little diluted broth to be taken in four portions.

April 5th, 8 A. M. Face much flushed ; nose cold. Tongue dry and red ; thirst urgent ; no vomiting, nor

stools. Pulse 88; hands cold. Respiration 20, costal. No cramps.

He was at once bled to about $\frac{3}{4}$ x.; the blood flowed in a stream. During the bleeding the nose did not become warm, nor did the pulse change. After the V. S. the nose and hands still remain cold; the face, which became less red while the blood was flowing, has resumed its former color. The pulse is still 88, but extremely small and occasionally escaping under the finger.

Lemonade with syr. of gum.

Sinapisms to the feet.

April 5th, 5 $\frac{1}{2}$ P. M. face much flushed; nose and hands cold; pushes the bed-clothes aside. No vomiting, nor stools. Pulse 84, very small. Respiration 24, very high. No cramps.

Continue prescriptions.

April 6th, 8 A. M. Face still flushed; cheeks warm, nose cold. Tongue white; abdomen somewhat tympanitic; no vomiting, nor stool; pulse not perceptible at the wrist, 80 at the carotid; hands cold. Answers with extreme difficulty and very vaguely, as in a commencing delirium.

Lemonade. Five leeches behind each mastoid process.

Sinapisms to lower extremities.

April 6th, 5 P. M. Free bleeding from leeches; delirious since morning visit; no vomiting, nor stool. Died at 5 $\frac{1}{2}$ P. M. Autopsy April 7th, 8 A. M. 14 $\frac{1}{2}$ hours after death.

External appearances. Face very violet; limbs stiff; conjunctivæ still continue injected; muscles fully developed, firm, of a brownish red.

Abdomen. Peritoneum rather dry; venæ cavæ and portæ filled with a liquid, black blood.

Stomach—contracted in its whole extent, contains a green liquid; internal surface covered by a very adhesive mucus; mucous membrane of great cul-de-sac greatly injected at some points, but of its ordinary con-

sistence; whole posterior surface and great curvature occupied by numerous folds of a lively red color; the membrane, covering these folds is softened, not yielding a strip; between the folds it is red in some places, but of its natural thickness and consistence; pyloric valve is of an intense red color; sub-mucous cellular tissue everywhere white; no large vein seen beneath the mucous membrane. (Unquestionable inflammation.)

Small Intestines—contracted; externally of a pinkish tinge. Duodenum and jejunum contain a green, porraceous matter, somewhat liquid above, but existing in thick masses below. These masses are seen only at intervals, the intervening spaces being lined by a white mucus. The upper half of the ileum is very small and almost empty, containing only a very small quantity of this same green material, which becomes more abundant in the latter half. The liquid in the duodenum and elsewhere is not acid. Internal surface through whole extent of intestine is of a pale pink color; mucous membrane of its natural consistence; in six last inches a few follicles of Brunner were observed, but not a single patch of Peyer's glands throughout. Considerable quantity of fat in mesentery; mesenteric glands healthy.

Large Intestines—distended with gas; contain a pul-taceous matter of the consistence and odor of fæces; towards the end a few masses of nearly formed fæces. Internal surface everywhere white, except in transverse colon a large patch (four inches long, two broad) of a vivid red, and a few red folds towards the end of the intestine. In the middle of the colon is a spot of an inch in diameter, where the mucous membrane is perfectly dry.

Liver externally of a brownish red; moderately gorged with blood; of natural size and consistence. Gall-bladder distended with a dark, green, liquid bile.

Spleen three inches four lines long, two inches broad; rather more violet and dry than usual; consistence natural.

Kidneys—natural.

Bladder—contains $\frac{3}{4}$ vi. of urine, acid ; internal surface natural.

Thorax. *Pleura* moist. *Lungs*—anteriorly white and dry ; posteriorly red, engorged with blood, crepitant ; some cellular adhesions of left. *Pericardium* moist : *heart* of its ordinary size ; right cavities contain a liquid blood and one small, white, thin coagulum, in form resembling a membrane ; left cavities empty. Internal surface and consistence natural. *Aorta* contains a black, liquid blood without any coagula ; internal surface white. *Vena cava* white. Intercostal veins distended by a very black, liquid blood.

Head. Veins of dura mater full of blood ; rather numerous small veins in pia mater filled with black blood. *Brain*—without any trace of congestion ; bloody points on the incised surface fewer than in most of the cases I have hitherto seen ; consistence natural ; ventricles empty. *Cerebellum* healthy ; no appreciable lesion in brain.

Spinal Marrow of natural color and consistence ; slight venous net-work over its surface ; no appreciable lesion.

Semilunar Ganglion pale internally and externally. *Sympathetic Nerve* in thorax and abdomen examined with care ; no appreciable lesion ; surrounding cellular tissue not red, nor injected.

CASE XXXIX.

St. Charles, 9. . . . Female Ward.

Under care of M. Louis.

BALOUVIERE, æt. 39, seamstress, entered April 18th, 10 A. M. and was seen the same evening at 4 P. M. Insufficiently nourished during winter, though nourishment rather better for last six weeks ; has seen several persons with cholera since the epidemic commenced, but has not

taken care of any. Sick since 17th, 3 P. M.; was somewhat ill for preceding eight days, but did not leave work until 17th; during the eight days had head-ache and pains in the limbs, with diminution of appetite, without nausea, vomiting or diarrhœa. On 17th, 3 P. M. head-ache became intense, severe diarrhœa without any preceding chill; stools almost continual and always preceded by colic, yellow except towards the last; vomiting commenced four hours afterwards, as also very violent cramps which drew cries from the patient; vomited eight or ten times before her entrance; the matter white, bitter, but not greenish; no urine since attack; has suffered constantly from oppression since the invasion; senses have remained perfect.

April 19th, 10 $\frac{1}{4}$ A. M. Last night had frictions and two opiated enemata, also sinapisms to the thighs; since which last the cramps have diminished. Face rather pale, neither red, nor livid; eyes hollow; cheeks and nose rather cool; hands and fore-arms out of bed, much cooler; lower limbs of their natural temperature; folds of the skin of neck very slowly effaced. Tongue not very warm, moist, clean and a little blue at its edges; thirst urgent; desires cool drinks; vomits sometimes after drinking; no stools, nor colic since entrance; complains of pain and sense of oppression at epigastrium. Pulse 100, thread-like; no urine. Respiration quite high, with frequent sighing, 36. Head-ache much less than yesterday; voice feeble; senses and mind natural; complains of great prostration.

Solution of syrup of gum. Seltzer water.

For enema four ounces of flax-seed tea with \mathfrak{z} i. of laudanum, twice.

Cataplasm to the epigastrium.

April 19th, 4 P. M. Has had one enema only, which she retained half an hour; arms and fore-arms of their natural heat; hands warmer than natural; nose slightly cool, as also left cheek, while right is warm; expression of countenance calm. Tongue clean at the edges,

white at the centre and not quite so moist as common ; hiccough very frequent ; has twice vomited her drinks ; sensations at epigastrium as this morning ; no stool. Pulse 100, less feeble than this morning ; no urine. No cramps.

Continue same drinks. Antispasmodic mixture with ʒi. of white poppies and ʒss. of the water of orange flowers.

Cataplasm to abdomen.

April 20th, 8 A. M. Says she feels the same as yesterday. Face and upper extremities of their natural heat ; expression of countenance natural. Tongue not very moist, white at centre, and clean, but neither red nor livid at edges ; thirst ; asks for cold drinks ; no pain at epigastrium on pressure, but sense of feebleness there ; a little nausea and vomiting ; one stool. Pulse 96, still small and feeble ; no urine ; no sweat in night. Slight dyspnœa. Some dozing during night.

Solution of syrup of gum. Seltzer water with ice.

Antispasmodic mixture as before with gtts. iv. of æther.

For enema four ounces of flax-seed tea.

April 20th, 4 P. M. Face somewhat flushed and hot with an expression of *malaise* ; heat natural in the parts which are covered. Tongue as before ; took a little pulp of an orange half an hour since, after which she immediately felt a weight at the stomach, and has vomited five or six times ; hiccough also since orange, which, together with sense of weight, still continues ; thinks she has not yet vomited the whole of orange. Respiration 12, rather high and at times sighing. Says her head feels embarrassed ; and she has a sort of numbness, but no cramps in her limbs.

Enema of flax-seed tea.

April 21st, 8 A. M. Has had the enema. Slept somewhat during night ; left cheek and nose a little cool ; face otherwise natural. Tongue moist, yellow and villous at centre, clean at edges ; craves acid drinks ;

no appetite, though she would like some diluted broth; hiccough slight; vomited two or three times last evening a green fluid with a little orange; no nausea, nor vomiting this morning; no pain at epigastrium; no stool. Pulse 92, rather difficult to count, small though regular; no urine; no sweat. Some head-ache, especially in forehead; no cramps; occasional subsultus tendinum, mostly in right arm.

Continue treatment.

A very little diluted broth.

April 21st, 4 P. M. Face flushed, somewhat livid; lies motionless, on back, dosing, with eyes half-open; is not aroused by the application of the hand to her face; cheeks moderately warm; heat of surface natural; folds of skin of neck quickly effaced. Tongue not so moist as natural; no pain at epigastrium, but a pain like fatigue over abdomen, which she says is diminished by pressure. Pulse 92. Respiration 14, high. Head-ache slight; no deafness; patient attributes her drowsiness to fatigue; after being roused falls asleep again in the midst of the examination.

Fifteen leeches to the neck. Sinapisms to the lower extremities. Enema twice.

April 22d, 7½ A. M. Has had leeches, sinapisms and enemata; the last have not been evacuated, though given last evening; the coma has increased; face hot and flushed; skin entirely insensible to hard pinching. Pulse 80. No vomiting; no stool; no urine.

Lemonadc. R. Hydr. Sub. Mur. gr. ii. every two hours. Sinapisms.

Twenty leeches to the neck.

Died April 22d, 2 P. M. Autopsy April 23d, 8 A. M. eighteen hours after death.

External appearances. Skeleton well-formed; no emaciation; slight lividity of inner part of thighs; limbs quite rigid; coldness complete.

Abdomen. *Stomach*, small, not much larger than the large intestine; not containing any liquid, its parietes

being lined with a greenish grey material; on the internal surface of the pyloric portion, especially posteriorly, are seen numerous longitudinal folds of a grey, reddish color, as also some stripes of one or two lines in breadth of a deeper red between these folds and in other parts of the stomach. Mucous membrane everywhere of its natural velvet-like appearance, nowhere granulated, of its ordinary thickness and consistence, giving a strip of four to five lines in the great cul-de-sac, seven to eight along the great curvature and twelve to fifteen along the small curvature; this membrane and the subjacent cellular tissue are somewhat injected.

Small Intestines slightly distended, of a grey color externally; containing a greenish mucous material, which is not very fluid in the first part, but becomes more so below, and is mixed there with much mucus: on pressing the intestine a reddish material issues with this greenish mucus, especially from the ileum. Internal surface of the same general color as the external; mucous membrane of its ordinary thickness; giving a strip of four to six lines above and eight to twelve below as usual, not softened therefore at any point whatever. In the three last feet are seen some of Brunner's glands of the size of mustard-seed only, or a little larger. Patches of Peyer's glands natural. In the mucous membrane are seen some vascular ramifications, but slightly developed however, the membrane being generally pale; subjacent tissue, universally, more or less injected.

Large Intestines much distended in the first half, below of nearly the natural size; containing a very copious greenish material, more consistent towards the rectum, having a fæcal odor, but not formed fæces. Internal surface everywhere greyish, without any injection, greenish and yellowish at some spots, being of the same color with the material in contact with it; mucous membrane everywhere rather thin, yielding a strip of eight to twelve lines, without showing any glands.

Liver of its ordinary size ; rather soft ; somewhat pale ; finely granulated and easily penetrated by the finger.

Gall-bladder of at least double its usual size ; distended by a greenish yellow liquid, which is transparent, mixed with an abundant, yellow, glairy material, which adheres closely to the internal surface even after washing. Mucous membrane of a somewhat livid, deep red color over about one third of its extent and of a greenish yellow elsewhere, having its ordinary areolar aspect, the edges of the areolæ being rather thicker than usual where it is red ; this red portion is likewise rather thicker than the rest, but gives everywhere a strip of an inch or more in length ; the subjacent tissue in this part is also quite injected.

Spleen very small ; pale.

Kidneys natural ; of a somewhat livid red color ; pelves and infundibula healthy.

Bladder of a moderate size, and containing a little transparent liquid ; mucous membrane healthy.

Uterus large ; owing to a large fibrous tumor developed in the substance of its neck.

Thorax. *Pericardium* healthy. *Heart* rather small, moderately firm, containing a partly liquid and partly coagulated blood, with some thick coagula.

Lungs. *Left*, partially adherent to pleura ; upper lobe rather light, of a bright red and a little engorged behind ; lower lobe heavier, of an intense red, and granulated at some points, (hepatized.) *Right*, universally adherent ; upper lobe lighter than that of left, and less red ; lower slightly hepatized at some points, but more generally engorged, i. e. there flows from it on incision a copious, red, frothy fluid.

Head. Numerous drops of blood on the external surface of the dura mater. Arachnoid quite moist, containing some drops of serum ; beneath it there is but little serum, and this is found only in the neighbourhood of the longitudinal sinus. Pia mater of the convexity slightly injected ; that separating the convolutions much more so.

Cortical substance of the cerebrum paler than common; white substance slightly injected, of a delicate lilac tinge, with a few spots which remain white; substance of brain of its natural firmness. Two spoonfuls of transparent serum in the right ventricle, rather less in the left. *Corpora striata* of their natural color. *Cerebellum*, *Pons Varolii* and *medulla oblongata* natural.

Medulla Spinalis. Two spoonfuls of serum in the lower part of the spinal column. Medulla of its natural thickness and consistence throughout, except about the middle, where it is softened in an oblique direction from above downwards in the breadth of two lines, without any change of either color or thickness; (this softening is probably owing to mechanical violence in opening the canal); elsewhere of natural consistence.

Semilunar Ganglion small; externally violet; paler internally; firm.

Phrenic Nerves, *Par Vagus* and *Cervical Ganglia* natural.

It may be fairly asked in this case, if the chance of success from antiphlogistic treatment would not have been greater, had it been resorted to on the morning of the 20th, instead of being delayed until the evening of the 21st. A reference to the notes will, as we think, show that it was indicated as early as the date first mentioned.

We would here draw the attention of the reader to the double pneumonia, which probably contributed in no small degree to the death of the patient. It was completely latent, not being attended by any of its rational or ordinary signs. No examination of the chest was made by auscultation.

CASE XL.

St. Athanase, 26. . . . Male Ward.

Under care of M. Andral.

GROW, æt. 20, brush-maker, habitually well nourished and in good health, entered April 6th, 8¼ P. M.; was perfectly well until 7 A. M. of the same day, when, having committed no excess the preceding evening and having slept well during the night, was taken with colic and diarrhœa; six watery stools in 24 hours; soon followed by vomiting, also six times in 24 hours; slight cramps during night; no chill preceding or following diarrhœa; ate no food on 6th, having lost appetite.

April 7th, 6½ A. M. Now, air calm, no expression of suffering; eyes encircled by a dark ring; countenance otherwise natural; nose cold, cheeks cool, slightly livid; skin warm. Tongue of natural color and temperature, moist, with a thin white coat; thirst urgent; no pain in abdomen. Pulse 88, small, but easily perceptible; no urine since last evening. Respiration 28, costal. No head-ache; voice hoarse.

Lemonade. Friction if cramps recur.

April 7th, 6 P. M. Has vomited once; several stools without any colic. Pulse 76; urine three times. No cramps.

April 8th, 7 A. M. Has slept well; face flushed and warm; whole surface warm. Tongue moist, reddish; thirst; no pain in abdomen; has vomited three times a greenish bitter fluid; five watery stools without any flakes or masses, and no colic. Pulse 72, well developed; urine; respiration 24. Voice almost natural; no cramps.

R. Pulv. ipecac. gr. xxiv. in two powders at an hour's interval. Take drink in very small draughts.

April 8th, 6 P. M. Took both doses, and vomited a greenish bile after each; vomiting continued all day. Tongue moist, with a yellowish coat on lobes; thirst;

five green liquid stools ; no pain in abdomen. Pulse 76 ; urine.

Lemonade.

April 9th, 8 A. M. three stools ; otherwise well ; appetite.

Lemonade. A little broth.

April 9th, 7 P. M. Has taken broth without inconvenience. Tongue moist ; thirst ; mouth clammy ; no vomiting ; two stools ; no pain in abdomen. Pulse 60 ; urine abundant.

April 10th, 7 A. M. Tongue and mouth as yesterday ; no pain at epigastrium ; has vomited three times ; thirst ; three or four small liquid stools : no appetite ; desires cold water. Pulse 60 ; urine. No cramps.

Barley water sweetened. Ice from time to time in morsels. Sinapism to abdomen.

April 10th, 6 P. M. Tongue moist ; has drank iced milk without inconvenience ; thirst very slight ; no nausea ; no vomiting, nor stool ; no pain in abdomen. Pulse 72 ; urine. Voice almost, or quite natural, as also countenance. No cramps.

From this date the convalescence progressed ; no further accidents were observed, and in a day or two the patient left the hospital, slowly recovering his strength.

CASE XLI.

St. Rosaire, 19. Female Ward.

Under care of M. Andral.

SENEIF, æt. 23, seamstress, entered April 6th, well nourished. Eight days since loss of appetite and head-ache, being at time of catamenia, which had commenced and were arrested. On 4th, begun to find herself feeble and generally unwell, with lassitude and pain in limbs ; dined without appetite, but slept well on night of 4th ; worked as usual on morning of 5th, but did not eat breakfast

from want of appetite ; at 5 A. M. colic and diarrhœa, not preceded by chill, which have since continued ; vomiting for the first time this morning (6th), a green fluid ; vomiting frequent during day with acute pain at epigastrium ; cramps at 10 A. M., severe in lower extremities, less so in upper and sense of pricking in fingers as with needles.

April 6th, 6 P. M. Face of ordinary color ; lips red ; eyes a little sunken and encircled by a dark ring ; hands warm ; says she is very hot. Tongue white, without any redness, moist ; thirst urgent since morning ; some pain in loins ; pain at epigastrium on pressure, none elsewhere ; has vomited a brown liquid since entrance, which is bitter but not burning in its passage. Pulse 120, of ordinary force ; respiration 28, costal, says it is not at all embarrassed ; had urine during night but none to day. No head-ache ; voice apparently natural, she says a little enfeebled ; no cramps since entrance. Has taken to day an orange and a little hot wine, but immediately vomited both of them ; prefers cold drinks.

M. Andral ordered twenty leeches to the epigastrium, but she refusing, they were countermanded.

Seltzer water. Barley water.

April 7th, 7½ A. M. Face and skin of good color and temperature. Tongue natural ; no pain in abdomen ; has vomited a green liquid with some morsels of orange ; no stool. Pulse 100, natural ; no urine, nor desire to pass it. Menses have not reappeared.

Lemonade.

April 7th, 6½ P. M. Tongue well ; no vomiting ; one stool. Pulse 108 ; urine.

April 8th, 8 A. M. Face of good color ; eyes natural, but very slightly encircled by a dark ring ; has slept well. Tongue natural ; thirst continues ; no appetite ; no nausea, nor vomiting ; three or four stools without colic ; no pain in abdomen. Pulse 100 ; urine. No cramps.

Solution of the syrup of gum-arabic. A little broth.

April 8th, 6½ P. M. doing well ; three stools with a very little pain.

April 9th, three small stools. No appetite.

A little weak wine and water.

April 10th, 11th, appetite; took soup and a little bread without inconvenience and left hospital on 11th.

CASE XLII.

St. Charles, 12. . . . Female Ward.

Under care of M. Louis.

NERSON, æt. 40, says she has had a catarrh for three months. Now sick since April 7th. On morning of that day, diarrhœa, which has continued, having increased very much since yesterday (10th,) stools yellow and green liquid, yesterday had twenty; vomiting since last evening (10th,) green and bitter; some cramps this morning (11th,) for the first time; thirst from debut; has had no pain, or very little in abdomen; has not been hot at any time; aphony since last evening. Worked as usual until last night; and has eaten, as she thinks, even more than common.

April 11th, 5½ p. m. Lips of natural color; eyes very hollow; nose cool; rest of face of natural temperature; folds of skin of neck made by pinching more slowly effaced than natural; has been cold all night; heat of body now natural. Tongue, dry, red; thirst very intense, desires warm drinks; loss of appetite; abdomen of natural form; pulsation at epigastrium; vomited all her drinks during last night; stools very frequent. Pulse 80, regular, very feeble; very little urine to-day, though sufficiently abundant on the previous days since debut. Respiration not very frequent. Slight head-ache; mind clear; air calm; prostrated; sight somewhat obscure since last evening; hearing good; no ringing in ears; aphony; no cramps at present.

Warm lemonade for drink.

℥ iv. of simple enema with ʒ ss. of laudanum every two hours.

Friction every half hour.

April 12th, morning visit. Says she is the same as yesterday. Folds of skin of neck still slowly effaced. Tongue moist, of natural temperature, with a yellowish coat; less vomiting; stools as yesterday; no pain in abdomen on pressure. Pulse 68, small, feeble. Head-ache the same; no cramps.

April 12th, 4 P. M. Vomits all her drinks; no stools. Pulse 72, regular, feeble.

Continue treatment.

April 13th, 9 A. M. Face flushed and hot, a little violet; constant disposition to doze; general heat good. Tongue moist, villous, with yellowish coat; no pain in abdomen; thirst urgent; no nausea, no vomiting even after drinking; no stools. Pulse 80, regular, rather small; urine very scanty. Respiration 12, slightly unequal and rather high; complains somewhat of oppression. Slight head-ache; sight a little obscure; hearing good; no ringing in ears; aphony incomplete; constant drowsiness.

Lemonade.

April 13th, 5 P. M. Face very red, more flushed than this morning; heat general, aspect of slowness and feebleness. Tongue and alimentary canal the same. Pulse 80; no urine. Respiration 10, unequal, somewhat high. No head-ache, nor feeling of embarrassment in head; voice feeble.

V. S. ad. 3x.

April 14th, 7 A. M. Face flushed and hot as last evening; no relief, as she says, after V. S.; blood flowed in stream. Tongue moist, a little white; no vomiting, nor stool. Pulse 76, regular, not full; urine. Respiration slow. Says head feels heavy; senses perfect; very drowsy, and answers very slowly and apparently without thinking.

Lemonade. Flax-seed tea with $\frac{3}{4}$ ss. of sulphate of soda for enema. 20 leeches to neck.

April 14th, 7 P. M. Leeches were applied and bled

freely ; did not retain enema. Face hot and flushed ; coma from which she cannot be roused. Pulse 96, small.

Shave head, and apply ice to it in a bladder.

Enema of this morning twice. Sinapisms to lower extremities.

Died 15th, 2½ A. M. Autopsy 15th, 11 A. M. 8½ hours after death.

External appearances. Skeleton perfectly formed ; heat well preserved ; no lividity of surface ; embonpoint considerable.

Abdomen. *Stomach* smaller than common, especially in pyloric half, where it is no larger than the large intestines ; contains a moderate quantity of a clear, greenish, or yellowish fluid and a very viscid mucus of the same color, which adheres closely to the mucous membrane. Internal surface generally of a deep red color, especially in longitudinal lines along the small curvature ; mucous membrane somewhat brilliant and slightly, though imperfectly raised like velvet, of its natural thickness and consistence ; very slightly granulated at several points in the neighborhood of the pylorus, where it is pale or of a yellowish color.

Small Intestines greyish and at intervals pinkish externally ; very small in their whole extent, especially the last half, so that the entero-tome glides through it with difficulty ; contain in three first feet a somewhat thick deep yellow mucus, more adhesive and of deeper color afterwards, and towards the end of a very deep green. Internal aspect resembles that of the material in contact with it. Mucous membrane pale, of its natural thickness throughout, giving a strip however of from two to five lines only, and perhaps rather more adherent to subjacent tissue than usual ; strip rather longer near the cæcum. None of Brunner's, nor of Peyer's glands seen. Mesenteric glands small, natural.

Large Intestines of natural size ; containing a considerable quantity of fæcal matter in their whole extent.

Mucous membrane pale with some few points of slight pink ; thickness and consistence natural.

Liver moist, rather pale, of small size, not quite so firm as common, containing but a moderate quantity of blood.

Gall-bladder very small, containing a brilliant, granulated calculus in the midst of a puriform fluid ; no ulceration.

Spleen natural.

Kidneys natural. *Bladder* distended by a considerable quantity of urine ; natural.

Uterus inclined to the left ; in its right side is a small fibrous tumour.

Thorax. Lungs. Left ; some partial adhesions ; no serum in pleura, which is moist ; upper lobe slightly emphysematous, containing a moderate quantity of frothy blood ; lower lobe heavier than upper, containing less air, not hepatized but incompletely spleenified. *Right* ; some partial adhesions ; much lighter than left ; slightly emphysematous in upper half ; somewhat red internally ; neither hepatized, nor spleenified.

Heart of its ordinary size ; containing a quantity of liquid blood with some coagula ; natural.

Head. Pia mater perhaps somewhat more injected than common : substance of brain slightly injected ; some bloody points on medullary substance ; two drachms of clear serous fluid in each lateral ventricle ; substance of natural consistence. *Pons Varolii, cerebellum* and *medulla oblongata* natural as to color and firmness.

Par Vagum healthy. *Middle cervical Ganglion* small, greyish ; upper more white.

Semilunar Ganglion greyish, thin, firm ; natural.

Spinal Marrow not examined.

CASE XLIII.

St. Rosaire, 21. . . . Female Ward.

Under care of M. Andral.

SELIEVRE, æt. 32, baker; diarrhœa on April 6th; chill with trembling at 8 P. M. of same day, followed by increase of diarrhœa and afterwards by a burning heat; vomiting with cramps in lower extremities this morning (8th,) and since then she has kept her bed; on the 7th, suffered much from pain in abdomen.

April 8th, 6½ P. M. Eyes sunken, encircled by a dark ring; face and lips violet; nose and cheeks cold; hands violet, cool; says she does not feel hot. Tongue moist, cold, otherwise natural; pain at epigastrium and in rest of abdomen, on pressure; says she suffers much in abdomen, loins and chest; vomiting and stools of a green liquid. Pulse 92, small; no urine since yesterday. Respiration 44. Voice hoarse, somewhat feeble.

Thirty leeches to epigastrium. Lemonade.

April 9th, 9 A. M. Leeches bled abundantly. Tongue moist and white; nausea and vomiting of a green liquid during night, though less than yesterday; fifteen stools, green, liquid, with colic; no pain at epigastrium since leeches, but that at hypogastrium and in loins continues; thirst less. Pulse 116, full; cheeks flushed, skin warm; no urine; respiration 32. Cramps frequent.

V. S. ad ⅔ x.

April 10th, 7½ A. M. Blood covered with a thin, greenish buff. Thirst urgent; no pain in abdomen; has vomited two or three times; five or six abundant stools without colic. Pulse 112, full; skin warm; no sweat; a little urine this morning. Respiration costal; says she has no dyspnœa. Has slept all night; no cramps to-day and but once yesterday.

Barley-water for drink.

April 10th, 6½ P. M. Cheeks much flushed and burn-

ing ; feels hot ; nose cool ; skin generally hot. Tongue slightly red and dry ; thirst ; burning and sourness at stomach ; very little pain on pressure of epigastrium, and none in other parts of abdomen ; frequent nausea after drinking ; vomited three times a green liquid, not very abundantly ; no stool, nor tenesmus. Pulse 100, full and hard ; no urine. Respiration 32, costal ; feels slight dyspnoea ; respiratory murmur natural. Slight head-ache ; no ringing in ears.

V. S. ad $\frac{3}{4}$ xii. Barley-water with syrup of gum.

April 11th, 8 A. M. Coagulum of blood very consistent, large, thick, florid, altogether natural, without buff. Has slept well. Tongue natural ; no thirst ; vomited once, bitter ; frequent nausea with, or without drinking ; pain in umbilical region ; frequent desire to go to stool, but no evacuation. Pulse 100, as yesterday ; face flushed ; skin hot ; urine once during night. Respiration 28, very costal.

Lemonade. Enema of infusion of mallows. Cataplasm to abdomen.

April 11th, 6 P. M. Has received much relief from cataplasm. Tongue moist, whitish ; thirst less ; no nausea, nor vomiting ; one stool, small, after enema ; no pain in abdomen.

April 12th, 8 A. M. Has slept well ; face calm ; cheeks less flushed, not hot ; eyes still sunken and encircled by a dark ring. Tongue as yesterday ; thirst ; no nausea, no vomiting, no pain in abdomen ; no stool. Pulse 90, full, hard ; skin hot ; no sweat during night ; urine twice. Respiration 24, still costal. No cramps.

Lemonade.

April 12th, 6 P. M. Countenance, tongue, alimentary canal, pulse as this morning. Says she feels well ; no suffering, no pain in any part.

April 13th, noon. Has slept well ; face cool ; skin agreeably warm ; tongue same ; thirst less ; no pain in abdomen ; no vomiting ; no stool. Pulse 90 ; urine. No cramps. Convalescent. Left hospital next morning.

CASE XLIV.

St. Athanase, 32. . . . Male Ward.

Under care of M. Andral.

JOSEPH FAILLEUR, æt. 46, carpenter, has been prisoner at St. Pelasgie for last two months and for some time past in a wretched condition; entered April 5th, at noon. On 3d, loss of appetite without any other indisposition; 4th, ate some peas at noon, went to bed at sunset and awoke in night with a feeling of general malaise; on waking had a chill with trembling, which was followed by heat and then by profuse sweat; soon after this, diarrhœa commenced, and was immediately succeeded by vomiting; these symptoms continued all night. On 5th, at 10 A. M., severe cramps, first in lower and afterwards in upper extremities.

April 5th, 1 P. M. Face animated; eyes encircled by a dark ring, somewhat hollow, open; pupils natural; nose and cheeks cold; hands cool; temperature of trunk natural; says he feels very hot. Tongue slightly red at its point, quickly becoming dry after drinking, a little cool; thirst urgent; drinks almost immediately vomited; colic about umbilicus. Pulse distinctly felt; no urine since 8 A. M. Respiration high, panting. Intense head-ache; voice half-extinct.

V. S. to 3viii. Lemonade.

2 P. M. An hour after the bleeding; face less red, livid; lips violet; pulse very small, frequent; head-ache less; cramps severe.

April 5th, 6 P. M. Face livid, cool; nose cold; lips violet; is overcome with heat, as he says. Tongue cool, covered with a thick, yellow coat; vomitings watery, very copious; has vomited a lumbricus; stools very abundant. Pulse thread-like, 140; Respiration 32, very costal; hands violet, cold; cramps very severe, drawing cries from the patient; complains much of pain low in

right chest, probably from cramps of intercostal muscles.

R. Pulv. Ipecac. gr. xxiv—to be taken in two doses, at an hour's interval.

April 6th, 9 A. M. Took both powders; vomited after first a clear, watery liquid; vomited likewise after second. Says he feels better. Face less violet, but still cold. Tongue cold, violet, moist; thirst; nausea after drinking; vomiting continued all night, being provoked every time he drank; several watery stools during night; no pain at epigastrium, but some at umbilicus. Pulse 120, rather full; no urine; respiration 36; no sweat during night.

R. Pulv. Ipecac. gr. xxiv; as yesterday.

Enema of the decoction with 3 i. of the extract of ratanhia—to be repeated once.

Pure water for drink, as he prefers it.

April 6th, 6 P. M. Took both powders, which were followed by vomiting. Lying on left side; disposed to sleep but cannot; very manifest emaciation of face since last evening. Tongue white and moist; pain towards epigastrium and about umbilicus; constant vomiting; several stools of a brownish red liquid. Pulse 120, small; has had chills since morning; no urine. Cramps less severe.

Seltzer water. Sinapisms to abdomen.

April 7th, 7¼ A. M. Has taken his bottle of seltzer water. Air of great prostration; nose and cheeks cool; lying on right side. Tongue as yesterday; says has pain in abdomen; several vomitings; frequent stools. Pulse very small, about 96; hands cool; no urine.

R. Pulv. Ipecac. et. Opii. gr. xii. Div in charts. No.

IV.

One every hour. Pure water for drink.

April 7th, 6½ P. M. After powders vomited a full basin of watery liquid. Countenance greatly sunken; seems like a man after great fatigue. Tongue slightly dry; seven or eight stools. Pulse 112; skin warm; no urine.

April 8th, 8 A. M. No sleep during night; expression of great prostration; disposed to sleep; lips violet; face cool, nose cold; rest of skin of mean temperature. Tongue somewhat dry, red; continual nausea; pain at epigastrium, as also some over whole abdomen, but not increased on pressure; several vomitings; some stools of a greenish yellow liquid with numerous little granules like rice. Pulse 96, fully developed; no urine. Respiration 28, costal. Voice hoarse, very feeble.

Thirty leeches to epigastrium. Cataplasm to abdomen after the leeches. Enema, infusion of poppy-heads.

April 8th, 6½ P. M. Countenance motionless; eyes half closed. Tongue red and dry; thirst; no vomiting; seven or eight stools very small, of same quality as that described this morning; no pain in abdomen. Pulse 84, small; no urine. No cramps.

April 9th, 8½ A. M. cheeks flushed; face of good temperature; says he is warm. Tongue somewhat red; thirst; pain in abdomen; three vomitings; no stool. Pulse 80, small; respiration natural; urine twice. Aphony.

Lemonade.

April 10th, 7 A. M. Great prostration. Tongue moist, cold; thirst; acute pain at epigastrium on pressure; no vomiting; no stool. Pulse imperceptible; urine; skin cold; respiration 28, costal, very high. Aphony complete. No cramps.

Large sinapism to abdomen. Enema of starch with the following:

R. Alcohol. ʒ i.

Camphor. 3 ss.

Quin. Sulph. gr. xx.

M.

The same to be repeated once.

Blister of three inches to each side of the chest. Friction of limbs with ammonia. Blisters applied at 9 A. M. but did not draw.

Died at 2½ P. M. April 10th. No Autopsy.

CASE XLV.

St. Athanase, 30. . . . Male Ward.

Under care of M. Andral.

BOURGUIN, æt. 26, soldier, entered April 4th, at noon; strong constitution and good health; has committed no excess and knows no cause of illness. On the 3d, was well in the morning; at 11 P. M. head-ache, colic and diarrhœa; twenty stools in rapid succession, watery, with watery vomiting; diarrhœa and vomiting ceased at noon of 4th; cramps on 4th from 6 A. M. to 3 P. M.; none since; they were severe in both upper and lower extremities. At entrance, nose cold, no heat of surface generally. Was at once bled to $\frac{3}{4}$ xii.

April 5th, 9½ A. M. Ring round eyes moderately dark; conjunctivæ a little injected; pupils natural; face warm, flushed, covered with sweat; whole skin warm and moist. Tongue white, moist and warm; thirst has ceased; slight pain about umbilicus. Pulse 92, sufficiently full; no urine since yesterday morning, and no desire to pass it; respiration 36, costal. Is disposed to sleep.

Lemonade sweetened with syrup of gum.

April 5th, 6½ P. M. Says he is better. Tongue well; no vomiting; one stool; no thirst. Pulse 92, full; sweat ceased; urine at 11 A. M.

April 6th, 9 A. M. Says he is well. Tongue natural; still no appetite; no thirst; no vomiting; four stools, watery, without colic. Pulse 96; urine twice, abundant. Respiration natural.

Lemonade. Strict diet.

April 6th, 6 P. M. Says he feels feeble; lips violet; skin warm. Tongue dry; no thirst; copious vomiting of a green, porraceous liquid; two stools; no pain in abdomen. Pulse small, 100. Respiration 40, high.

M. Andral ordered thirty leeches to the epigastrium, but the patient refused to have them applied.

April 7th, 7 A. M. Face cool; hands of good temperature. Tongue natural; thirst gone; several vomitings of a green liquid; several stools without colic; no appetite, but begs for food because feeble. Pulse 92; urine abundant.

May take a very little weak wine and water.

April 7th, 6½ P. M. Tongue red and somewhat dry; vomiting abundant, green; pulse somewhat excited.

Again refuses leeches, which were advised.

April 8th, 7½ A. M. Countenance natural; feels well. Tongue natural; no thirst; drinks without nausea; one vomiting, but less green than yesterday; one stool, green; no appetite. Pulse 80, full; urine.

Lemonade. A little diluted broth.

April 9th, 8 A. M. Convalescent. In one or two days after he left the house well.

CASE XLVI.

St. Charles, 5. . . . Female Ward.

Under care of M. Louis.

BOUILLY, æt. 35, seamstress, unmarried, entered April 17th, 7 P. M.; well nourished, and lives in a dry room. Sick since 13th; for twelve preceding days head-ache and a little pain in the ears, to which she is subject, some diminution of appetite, but no looseness of bowels. At debut on 13th, 1 P. M., after a pretty severe chill, with trembling, diarrhœa which has continued; thirty stools the first day, fifty the third, and again very numerous yesterday; no colic for first three days, then a little, which was renewed yesterday after an enema of starch and infusion of poppy-heads, the first and only one she has taken; nausea and great retching without vomiting on 16th, and 17th; cramps also on 16th in upper and lower extremities; sensation of cold from debut, which she could not overcome by a foot-stove; thirst always urgent; no urine

from invasion till yesterday, then very scanty; menses at debut, six days before their usual period, lasting only 48 hours, (one third of their usual duration,) but during that time sufficiently copious; for two first days ate a little meat, which did not excite nausea; drank only rice-water; very little head-ache from commencement, increased since yesterday; senses also perfect up to that time, when sight became a little obscure, and she had ringing in the ears; voice has not been altered; went to bed yesterday (17th) for the first time; after hot drinks and heat externally copious sweats; came to hospital in carriage; on arrival had lemonade and friction, but neither a mixture nor enema.

April 18th, 8 A. M. A little dosing in night, but no good sleep. Face flushed, hot; says she has but little color in health; eyes rather hollow and encircled by a dark ring; folds of skin of neck quickly effaced; hands warm, a little moist. Tongue moist, without any coat, of its natural color; thirst intense; slight nausea, not increased by drinking; has no preference for either warm or cold drinks; feeling of oppression and of internal heat at epigastrium; hypogastrium painful on pressure and has sense of internal heat there also. Pulse 64, moderately full. Respiration 36, much quicker than a few moments since. Patient says she has frequently observed this variation and attributes the acceleration to the nausea, which she now experiences. Headache; senses perfect; mind clear; memory good; voice natural: at this moment pretty severe cramps in left hand and in calves; has had them all night, especially in left side.

Solution of the syrup of gum. Seltzer water. Cataplasm to abdomen. $\frac{3}{4}$ iv. of flax-seed tea with \mathfrak{D} i. of laudanum for enema, to be repeated once.

April 18th, 4 $\frac{1}{4}$ P. M. Countenance natural. Thirst; has vomited twice, after drinking, green, bitter; no stool; oppression at epigastrium continues; pain with heat at hypogastrium; heat about anus. Pulse 72; skin agreeably warm and moist; no urine, though great desire to

pass it. Respiration a little accelerated and high. Some cramps in left arm and leg.

Enema of $\frac{3}{4}$ viii. of flax-seed tea, twice. Cataplasm to hypogastrium.

April 19th, 9 A. M. Countenance easy, natural; no sleep at night, which she attributes to cries of neighbour; sweats through the night on the left side only, as she assures us. Tongue cleaner at left than right; no nausea, nor vomiting; one stool after enema; colic pains about umbilicus during night, none now. Pulse 52 this morning, now 72; has passed urine twice, with a little burning in its passage. No headache; ringing in left ear; slight cramps in left hand during night; dull pains in left hip and shoulder; contusion on left flank three years since, where she still has pain occasionally.

Enema of $\frac{3}{4}$ viii. of flax-seed tea. Cataplasm to hypogastrium. A little broth. Lemonade.

April 20th, 8 A. M. Sleep. Face and temperature natural. Tongue cleaner at left than right; no vomiting; no stool; appetite. Pulse 68; urine. Ringing in left ear continues.

Lemonade. A little broth.

April 21st, 7½ A. M. Countenance that of health; no sleep. Tongue as before; no nausea, nor vomiting; no stool; appetite. Urine; no sweat. Pain rather sharp in left flank and knee; no cramps.

Enema of flax-seed tea. A little soup.

April 22d. All symptoms have ceased. Convalescent.

April 23d to 30th. Continued convalescent; feels perfectly well. To go out.

CASE XLVII.

St. Paul, 12. . . . Male Ward.

Under care of M. Louis.

LEJEUN, æt. 30, printer, entered April 14th, 3 P. M. Sick since 13th, 5 A. M. ; was in perfect health previously ; is well nourished and rarely commits any excesses ; chamber moist, but he sleeps there two or three times a week only. Disease commenced 13th, at 5 A. M. with diarrhœa, which has continued ; thirty stools at least in 24 hours preceding entrance, since when five or six only ; no colic ; no vomiting till after he had drank lemonade at hospital ; thirst urgent since invasion, but yet more so since the vomiting ; loss of appetite for the first time on evening of 13th, having breakfasted and dined well that day ; he worked also during the day of the 13th and attempted it on the following day, but found himself unable ; cramps yesterday (14th) a little before his entrance, for the first time, deciding him to come here, frequent in lower and rare in upper extremities ; no headache, nor embarrassment about head ; sight good ; tinnitus aurium at first, which has now ceased ; no sensation of cold at time of invasion ; during the night preceding the diarrhœa (12th—13th,) great heat as in fever ; he slept well however, and did not observe that he was thus hot till he awoke at 5 A. M. with the diarrhœa. Last evening at 5 P. M. much the same as at present. Was well rubbed with great relief to cramps. Voice feeble since entrance only. No chill at debut.

April 15th, 8½ A. M. Expression of face natural ; face not violet, but slightly livid, as also hands and fore-arms ; heat of surface rather greater than usual ; folds of the skin of neck quickly effaced. Tongue dry, soft, clean at centre, where it is red, and white without any lividity at the edges ; thirst urgent, which he is obliged to satisfy in small quantities at a time to prevent vomiting ; desires

cool drinks; no pain at epigastrium, except on pressure, and then not acute. Pulse 92, regular, rather large than small and strong than feeble; urine excessively scanty the first day, less so yesterday, especially after entrance. Respiration a little high, now and then with sighing. Mind clear, senses good; voice less feeble than last evening, disposed to sleep, though he has not slept during night; feeling of exhaustion, though he thinks himself better than last evening.

Solution of the syrup of gum. $\frac{3}{4}$ iv. of flax-seed tea, with 3 ss. of laudanum for enema, every three hours. Seltzer water.

April 15th, 6 $\frac{1}{2}$ P. M. has slept a little and feels better; face, hands and trunk warm, though face is not flushed. Tongue moist with a thin white coat on the lobes; thirst; much drink excites nausea and vomiting; no vomiting since noon; no pain in abdomen; five or six watery stools, abundant. Pulse 96, full, hard; urine in small quantities since morning. Cramps have almost ceased.

April 16th, 7 $\frac{1}{2}$ A. M. Countenance good, and expression natural; skin moderately warm. Has vomited at least ten times during the night, but nausea has ceased during the last two hours; tongue moist, white in some spots and red in others; thirst; no pain in abdomen; two or three stools. Pulse 80; urine; no sweat. Respiration easy; no sense of oppression. No sleep during night.

Infusion of tea. $\frac{3}{4}$ iv. of flax-seed tea with 3 ss. of laudanum, for enema. Antispasmodic mixture with 3 ss. of syrup of white poppies. Ice.

April 16th, 4 P. M. Has just now vomited a watery liquid, in which are seen shreds of mucus not at all resembling boiled rice; this vomiting followed a draught of the mixture, which he has taken three times and finds very disagreeable. Countenance calm; face flushed, hot; surface hot; tongue dry, red at centre and white at edges; no pain at the epigastrium; three or four stools. Pulse 76, rather full; urine.

Infusion of lime-flowers sweetened. Omit mixture.

April 17th, 8 A. M. Face flushed; has slept well. Tongue less dry, but not yet moist and still red at centre; no nausea, nor vomiting; hiccough for the last hour; four stools. Pulse full, not quick; urine. No headache; voice good; asks for wine and water, and broth.

Let him have a little of both.

℥ iv. of flax-seed tea with ℥ i. of laudanum for enema.

April 18th, 7 A. M. Epistaxis during night. Has vomited this morning half a pint of a greenish liquid, on the surface of which float numerous little white bodies of the size of mustard-seed, the whole resembling stagnant water covered with small vegetable materials. No difference in his sensations before and since vomiting. Tongue not yet moist; thirst great; no pain in abdomen; three stools.

Omit broth, etc. ℥ iv. of enema with gtts. vi. of laudanum, every two hours, for three times.

April 19th—23d. No further symptoms; appetite gradually increasing, and gratified without evil. Well.

CASE XLVIII.

St. Charles, 16. . . . Female Ward.

Under care of M. Louis.

CORNILLAT, æt. 51, chiffonière, entered April 18th, 3 P. M. Well nourished during winter; sick since the noon of the 15th; felt a little unwell for eight or ten days preceding, having nausea sometimes after eating, but no vomiting; nor loss of appetite; disease began on 15th, with diarrhœa (thirty stools each day for two days); no pain in abdomen; vomited five or six times last night, none before or since; no cramps; no urine since yesterday (17th) three P. M.; voice somewhat hoarse since yesterday. Came to hospital on a litter.

April 18th, 5½ P. M. No peculiar expression of coun-

tenance; eyes encircled by a dark ring; cheeks slightly red, lips of good color; face of natural temperature; surface generally of its natural warmth. Tongue whitish, villous, moist; thirst urgent; prefers warm and sweet drinks; bad taste in the mouth; no sense of oppression, nor pain at epigastrium; no nausea, nor vomiting, nor stool since entrance. Pulse 84, regular, rather feeble; no urine since entrance. Respiration 22, rather high, easy, without any sense of oppression. Is disposed to dose; no cramps; feels better since entrance, when she had two opiated enemata.

Lemonade with ice. $\frac{3}{4}$ iv. of flax-seed tea with \mathfrak{d} i. of laudanum for enema, twice. Friction every hour.

April 19th, 9 A. M. Tongue moist; no pain in abdomen, nor vomiting; no stool. Pulse 92; skin warm; urine. No cramps.

Seltzer water. Solution of syrup of gum.

April 19th, 4 P. M. Cheeks slightly colored; has had some sleep. No nausea, nor vomiting; one stool. Pulse 80; urine natural. Slight cough; no pain in chest. No cramps.

April 20th, May 3d. Continued convalescent, but feeble; no further symptom. Left hospital well on last date.

This case was slight, and its severe symptoms of very short duration. It is one which illustrates well the remark that the constitutional affection is by no means always proportionate to the gastric and intestinal symptoms. For here the first was very slight, while the diarrhoea was quite severe.

CASE XLIX.

St. Rosaire, 21. . . . Female Ward.

Under care of M. Andral.

CYTHERI, æt. 59, ravaudeuse (one who mends,) leads a wretched life, often nourished on dry bread alone, in-

valid for a long time ; left Hotel Dieu eight days since where she had been under treatment for a difficulty of respiration, as she says ; entered here April 2d, A. M. On March 31st, there came on, in the evening, diarrhœa preceded by colic pains about umbilicus, and soon followed by vomiting ; slight cramps same night in arms and legs. April 1st, diarrhœa and vomiting continued.

April 2d, 11 A. M. Now, eyes scarcely at all those of cholera, or very slightly so ; face slightly cold ; motions in bed very free, the patient helps herself to drink without aid ; no aphony ; vomiting continues.

April 2d, 7 P. M. Tongue red ; thirst urgent ; pain at epigastrium and on the sides ; has vomited three times ; one stool. Pulse irregular, 84. No urine since invasion.

Tea. Lemonade. Mixture with laudanum, z iii .

April 3d, 9 A. M. Features sunken ; eyes slightly hollow, moderately encircled by a dark ring ; pupils contracted ; color of face slightly livid ; nose cold ; cheeks warm. Tongue natural ; pain at epigastrium, none in rest of abdomen ; has very liquid stools in bed. Pulse 96, easily felt, but feeble ; warmth of hands natural ; no urine. Respiration 20. Aphony incomplete ; voice decidedly feebler than yesterday.

Lemonade.

April 3d, 6 P. M. drowsy ; feels feeble ; nose and cheeks cold. Tongue moist, slightly violet ; has vomited her lemonade ; continues to have liquid stools in bed. Pulse 92, small, feeble ; desire without ability to pass urine ; bladder empty. Cramps in fingers only.

Solution of gum arabic.

R. Mist. gum. arab. z iv .

Quinin. Sulph. gr. xii. M.

Take a spoonful every hour.

April 4th, 9 A. M. Has taken mixture. Face still livid, cool ; nose less cold. Tongue natural ; thirst less ; pain about umbilicus ; neither vomiting, nor stools during night. Pulse 72, pretty full. Desire without ability to pass urine.

Lemonade. Mixture as before.

April 5th, 9½ A. M. Lying on right side ; appearance of prostration and drowsiness ; complains of dizziness ; cheeks slightly red, rest of face of a yellow tinge ; conjunctivæ slightly injected ; skin hot. Tongue slightly gluey, brownish or viscid ; thirst constant ; frequent nausea ; pain about umbilicus ; vomiting of a green porraceous bile ; still asks for broth. Pulse 86, regular, pretty full ; no urine, but some desire to pass it. Respiration 24. Aphony incomplete.

Lemonade. A little diluted broth.

Plaster with ammoniacal ointment over epigastrium.

April 6th, 8 A. M. Face cold, not violet ; great prostration ; answers with extreme difficulty ; drowsy, constantly dosing. Tongue dry, slightly red ; vomiting during night, but no stool. Pulse 78, easily perceptible ; hands cold ; no urine. Aphony incomplete.

Lemonade. Mixture as follows :

R. Aq. Ment. V. ℥ iv.

Alcohol. ℥ ii.

Syrup. Simp. ℥ i. M.

Sinapism to abdomen for one hour.

April 6th, 6 P. M. Tongue dry and red ; intellect perfect ; surface cold ; very feeble ; gradually sinking.

Died at 9 A. M., April 7th. Autopsy April 8th, 8½ A. M., 23½ hours after death.

External appearances. Limbs small, thin, quite rigid, extended with difficulty. Muscles pale, not large.

Abdomen. *Peritoneum* rather moist, but slightly viscid or gluey ; omentum filled with fat, as likewise the mesentery ; vena portæ and cava filled with a liquid black blood.

Stomach, contracted in its pyloric portion to the size of the large intestine, contains a green liquid with white flakes of mucus. Internal surface of stomach generally of a reddish tinge ; in the great cul-de-sac numerous bright red points or dots, owing to a very fine injection of the vessels of the mucous membrane, which is never-

theless of its ordinary consistence and thickness ; in the pyloric portion the redness is not so bright, but the membrane is everywhere traversed by a network of numerous, very delicate vessels ; in this part are likewise seen several folds, and the mucous membrane is lined by a thick coat of mucus ; it is however of its natural thickness and consistence.

Small Intestines—external surface generally covered by a network of rather large veins ; contain in upper four fifths a yellow fluid, not very viscid, like mucus colored by bile ; in last fifth only a small quantity of a green, demi-solid material in little masses. Internal surface of duodenum slightly red in points ; jejunum and commencement of ileum of a pinkish hue, afterwards pale till within a foot and a half of the cœcum ; there it is of a deep livid red, and at several spots the mucous membrane is evidently swollen, projecting above the surrounding surface, very red and friable ; over the same extent are seen some disseminated follicles of Brunner ; mucous membrane throughout, except at the points indicated, is of its natural thickness and consistence.

Large Intestines—contain a yellowish green liquid without any fæcal odor. Slight injection of cœcum ; in colon several red spots, about fifteen in number, round, and of about five or six lines in diameter, owing to a fine injection of the mucous membrane ; between these spots the mucous membrane is pale ; of good consistence both on and between them ; numerous red folds in the rectum.

Liver—red externally and internally ; of ordinary volume and consistence. *Gall-Bladder* ; external surface quite injected ; filled with a very thick, green mucus ; biliary ducts free and filled with bile.

Spleen—three inches long, two broad ; of ordinary color and consistence.

Kidneys—pale ; thick, white, puriform matter in infundibula.

Bladder—contains about half a glass of clear urine ; internal surface white.

Uterus contains a small quantity of a reddish fluid, and a red polypus of the size of a small almond.

Thorax. Lungs. Right, adherent behind, where it is covered with a pretty thick false membrane; several lobules hepatized, or in the words of Andral, 'red induration of several lobules.' Left, cellular adhesions universal; dry and pale in front; engorged behind, where are two lobules in a state of red hepatization.

Pericardium dry: *Heart* enveloped in fat; tissue not of a very deep color, but firm and consistent; concentric hypertrophy of left ventricle (no œdema of legs); some coagula in both ventricles with curdled black blood; internal surface white, natural.

Aorta—bony plate on internal surface; otherwise natural: contains a black curdled blood and one fibrinous coagulum at its commencement.

Œsophagus pale. *Larynx* pale and empty.

Brain and *Spinal Marrow* not examined.

Semilunar Ganglion, and *Nerves* proceeding from it, more fully developed than common; of its ordinary greyish color; no redness either externally, or internally; of good consistence.

CASE L.

St. Athanase, 29. . . . Male Ward.

Under care of M. Andral.

DIDELOT, æt. 32, day-laborer, entered April 3d, at noon; for some time deprived of work, but always in good health, and now of quite a robust aspect. On 30th ult. appetite began to fail; on 31st vomiting, colic and diarrhœa, which have continued to present time.

April 3d, 2 P. M. countenance sunken, eyes hollow; body sufficiently warm. Tongue violet; no pain in abdomen. Pulse quite perceptible, soft; no sweat.—Cramps severe in calves.

20 leeches to epigastrium.

April 3d, 6 P. M. Leeches have been applied and bled copiously. Lying on right side with knees drawn up; eyes rather fixed, encircled by a dark ring; no injection of the conjunctivæ, pupils slightly dilated; cheeks red and warm; nose cold; skin of breast of natural warmth and color. Tongue violet, moist, of its ordinary temperature; constant and urgent thirst; no pain in abdomen; watery vomiting since entrance, and just now very copious vomiting of a watery liquid containing numerous, very minute, brown masses; no stool since entrance. Pulse 104, pretty full, somewhat resisting compression; hands warm. Respiration 24; cough for two months; expectoration of a few sputa of opaque mucus; no pain in chest; murmur of respiration in front natural. No urine since entrance; Tinnitus aurium; voice hoarse and feeble, but not aphony.

Lemonade with syrup of gum.

April 4th, 9 A. M. Lying on right side with knees drawn up; says he is no worse; no sleep during night on account of noise in the ward, but is disposed to sleep. Cheeks of a crimson color, but cool; nose cold; slightly yellowish tinge about nose and lips; eyes as before; temperature of skin natural. Tongue less violet than yesterday, covered with a thick coat; thirst less; vomited twice during night, and had one watery stool. Pulse regular, fuller, hard, 100; hands warm; no sweat during night; no urine; respiration 28; cough, etc, as yesterday. Voice the same; no cramps since six o'clock last evening.

April 5th, 8½ A. M. Dark ring about eyes diminishing; expression of face somewhat sad; cheeks and whole skin of a natural temperature; says he feels warm. Tongue moist, of ordinary temperature; no thirst; vomited twice since last visit; two or three stools yellow and green with fæcal odor. Pulse 80, sufficiently full; urine in good quantity during night. Respiration tranquil, 28, scarcely at all costal; cough and expectoration as before. No head-ache; no cramps. Asks for food.

Lemonade.

Very weak wine and water for drink. Broth in small quantity.

April 5th, 6 P. M. Tongue moist, slight yellow coat; no thirst; no vomiting; two stools without colic; no pain in abdomen; took broth with pleasure and without inconvenience. Pulse 72, full; skin warm. Respiration 28; urine abundant. No cramps; voice still hoarse, not so commonly.

Continue treatment.

April 6th, 8½ A. M. Has slept well; expression of face natural; no apparent prostration; skin warm. Tongue natural; no thirst; no pain in abdomen; no vomiting; one stool. No suffering anywhere. Pulse 80. Respiration well; urine sufficient; asks for food.

Lemonade. 1 Panade.

On the same day he entered the convalescent ward, well.

CASE LI.

St. Athanase, 25. Male Ward.

Under care of M. Andral.

LACHASSE, æt. 38, cabinet-maker, has been in the hospital fifteen days for a pleurisy; not however in the ward assigned to the cholera; was convalescent, when yesterday (7th,) at 8 P. M., after a little diarrhœa during day, severe vomiting of a yellow bitter fluid, which continued with an increased diarrhœa all night; cramps slight during night; says he was chilly last evening before vomiting, but had no trembling.

April 8th, 9 A. M. Eyes deeply sunken and encircled by a dark ring; face livid, lips violet; nose cold; cheeks warm; complains of cold feet; hands warm, feet cold, but not violet; color of skin natural. Tongue natural; slight thirst; no pain in abdomen. Pulse 116, small,

but quite perceptible; says he has passed much urine during night. Respiration 40, costal; says he has no dyspnœa. Ringing in ears; aphony incomplete.

R. Pulv. Ipecac. gr. xxiv. in two doses at an hour's interval. Lemonade in small draughts.

April 9th, 8 A. M. Countenance much as yesterday, except more marked prostration. Tongue natural; constant thirst; pain at epigastrium; continual nausea and copious watery vomiting during night; no stool. Pulse 96, small; hands cool; no urine. No cramps.

R. Pulv. Ipecac. gr. xxiv. as yesterday. Friction with oil of turpentine.

April 9th, 6½ P. M. Ipecac, not taken. Face warm, not flushed; hands cool; skin of surface generally warm; eyes still much sunken. Tongue white, moist; pain at epigastrium increased on pressure; has vomited three or four times, mostly his drinks; thirst; three or four watery stools. Pulse 92, small, feeble; no urine. Respiration 28. Frequent and severe cramps.

April 10th, 7 A. M. Feels a little stronger this morning; appearance of exhaustion less; ring about eyes less dark; face slightly cool; hands almost cold; trunk warm; says he feels neither hot nor cold. Tongue moist, white; thirst urgent; pain at epigastrium increased on pressure; constant nausea; has vomited six times since last evening, clear, watery fluid; five or six watery stools without colic. Pulse 72, not very feeble; no urine. Respiration 32, costal. Frequent and violent cramps in calves of legs.

Lemonade. A little diluted milk.

April 10th, 6 P. M. Vomited milk, and since that a small quantity of a green fluid. Tongue moist, white; pain at epigastrium; seven or eight watery stools. Pulse 80; skin warm; a little urine. Voice stronger, nearly natural.

R. Pulv. Ipecac. gr. xxx. in two doses at an hour's interval. Lemonade.

April 11th, 7½ A. M. Took both powders and vomited

after each, but very little since; hiccough since last evening; pain at epigastrium less; five or six stools. Pulse 76; urine. Pain in left ear since last evening.

Enema of starch with 3 ii. of diascordium (a tonic astringent electuary.)

April 11th, 6 P. M. Hiccough continues; no vomiting; three or four stools; complains of severe pain in throat. Pulse 78; no urine. Conjunctivæ quite injected; violent pain now in both ears.

April 12th, 8 A. M. has slept well; no pain in ears. Tongue white, moist; great thirst; very little pain in abdomen; hiccough continues; slight vomiting; three or four stools. Pulse small; urine. No cramps.

April 12th, 5 P. M. Tongue as before; no thirst; pain at epigastrium nearly gone; no vomiting; hiccough ceased three or four hours since; two small stools; no appetite. Pulse 76, still small. Respiration 15; urine abundant. No cramps.

April 13th, noon. Says he is feeble, but otherwise does not suffer. Tongue moist, white; thirst; no nausea, nor vomiting; seven or eight yellowish, liquid stools; no pain at epigastrium; no colic. Pulse 72, small; urine. No cramps.

April 14th, 7 A. M. No sleep; constant groaning; face flushed; eyes much injected; skin warm. Tongue the same; no vomiting; one very small stool last night; still some pain at epigastrium; complains of pain in throat, eyes and ears. Pulse 76, small, but hard; urine. No cramps.

April 14th, 3 P. M. Constantly complaining of great pain in ears, to which a cataplasm has been applied. Lips pale; eyes hollow, half-closed, greatly injected; seems to be in great suffering; says pain in eyes and in throat is constant and severe. Pulse 96, small, hard; skin not hot. Respiration 36, irregular, very high and costal.

Died on night of 14th. No Autopsy.

CASE LII.

St. Charles, 4. . . . Female Ward.

Under care of M. Louis.

GUYON, æt. 19, seamstress, unmarried, entered on the morning of April 16th; says she is well nourished, habitually in good health, and lives in a comfortable dry room; some oppression or dyspnœa for three years past, but no cough or emaciation till this present disease. Had considerable diarrhœa without loss of appetite, thirst, malaise or colic for two or three days, when on the evening of the 8th it suddenly increased (10 stools during night), continued severe for two or three days, since which to present time (16th,) not a single stool; soon after this increase of diarrhœa cramps which continued for 24 hours only, yielding easily to friction; shortly after, vomiting commenced, and has since continued, yellow and bitter, especially provoked by drink, at first five or six times daily, less since, and none since this morning; at first hands and feet were cold, but face not so now; eyes, as she was told, were much more sunken, etc. than at present; thirst and loss of appetite; voice was feeble three days from the invasion, remaining so only a few hours and is now as strong as natural; dyspnœa was increased; urine remained natural; sight and sleep always good. During disease, she took a ptisan for the thoracic affection, a yellow potion, which probably contained laudanum, and three enemata of starch and poppy-heads the first day; these were occasionally repeated afterwards.

April 16th, 5 P. M. Has just been bled to 3 viii. as the oppression was found so considerable on first seeing her. Face less flushed and hot than before the V. S.; expression natural; eyes a little hollow; folds of skin of neck rather slowly effaced. Tongue dry, furrowed, with numerous papillæ quite elevated and somewhat paler than the surrounding tissue, which is red; thirst; desires

sweet drinks of moderate temperature ; no appetite, but would like to try a little broth ; constant sense of oppression at epigastrium, which is increased on pressure ; this much less than a few days since ; no heat there ; no pain in abdomen. Pulse 120, small, regular ; urine copious. Respiration 26, quite high, unequal ; sound a little obscure on percussion on and under right clavicle ; heat somewhat more than natural, but not so great as before V. S. No headache ; mind clear ; senses perfect ; no ringing in ears ; says she was drowsy the two or three first days of illness, not so since. Emaciation within eight days, none before ; does not recover her strength.

Cataplasma to epigastrium. ℥ viii. of flax-seed tea for enema.

I will not detail this case further, as it is evident from what precedes that it was a rather slight case of cholera, which had finished its course before the entrance of the patient to the hospital. It is interesting to add, that the evidence of tubercles, which we had begun strongly to suspect the first day, became more and more confirmed, and that their developement threatened to be very active and rapid, although previously to this disease they seemed to have existed in rather an inactive state, producing simply a little dyspnœa. In a few days there was an inflammation of the right lung, at the summit of which also were heard a gurgling and a loud resonance of the voice. The patient was for the moment relieved by a palliative treatment, but the pulmonic affection was already far advanced, and was hastened by the occurrence of this acute disease. It is for this reason, and to exemplify this circumstance, that the case is here reported.

CASE LIII.

St. Rosaire, 22. . . . Female Ward.

Under care of M. Andral.

A WOMAN, æt. 47, ward-tender at La Pitié for a long time, but not in the ward assigned to cholera, entered the ward April 5th, 2 A. M. Headache for some days; last evening (4th,) 6 P. M. after eating supper "felt food turn upon stomach" as she says, and after a slight chill with trembling began to vomit; vomiting at first her food, then everything she drank, but no bile; diarrhœa after vomiting with severe colic; six stools since 6 P. M. cramps also soon after debut, severe in upper and lower extremities.

April 5th, 10 A. M. Eyes three quarters closed; dosing; face deeply colored; nose violet, while cheeks are rather crimson, through which the skin is seen to be of a yellowish tinge; eyes sunken and encircled by a dark ring; nose cold and cheeks warm; face covered with a clammy sweat; hands and fore-arms very violet and cold; feet also violet, but heated by a metallic ball; clammy moisture over whole skin, which is cold in the extremities, but warm on breast and abdomen. Tongue very dry, of a pale red; thirst intense; heaviness at stomach after drinking; complains of pain at end of sternum, none elsewhere in abdomen. Pulse 120, regular, small, easily felt at wrist; says she is hot; no urine since attack. Respiration 22, costal. Aphony.

She was at once bled from the arm to the amount of $\frac{3}{4}$ viii; the blood flowed very slowly and guttatim. The color of the face, temperature of the skin and the pulse continued the same after the bleeding as before.

April 5th, 7 P. M. Great prostration; face red, covered with sweat; nose cold; hands icy, clammy. Tongue dry; has vomited once; one stool. Pulse 108, regular, easily perceptible. Aphony.

R. Pulv. Ipecac. gr. xxiv. to be taken at one dose.
Lemonade for drink.

April 6th, 9½ A. M. Has vomited several times, but only one stool since ipecac. Nose cold, as also right cheek, while left is warm and more deeply colored; hands cold; skin generally warm and moist. Tongue pale and a little dry; pain about umbilicus. Pulse 104; no urine; respiration costal, slightly accelerated. Voice less feeble.

Lemonade.

R. Pulv. Ipecac. gr. xxiv. in two doses, at half an hour's interval. Enema.

April 6th, 6½ P. M. Took ipecac and at once vomited it. Eyes sunken and encircled by a very dark ring; nose and hands cold. No vomiting since that which followed ipecac; no stool, but complains much of colic and her inability to have stools. Pulse 96, easily felt.

R. Pulv. Ipecac. gr. xx. in two doses, at an hour's interval.

April 7th, 7½ A. M. Vomited after both doses of ipecac. Tongue dry; thirst urgent; complains of pain at epigastrium; has vomited only once since that produced immediately by medicine; one stool after enema. Pulse 92; skin warm; a little urine.

'Ptisan Pectorale,' which she prefers and asks for.

April 7th, 7 P. M. Face flushed and hot. Tongue dry; thirst; nausea without vomiting; one stool. Pulse 88; skin warm; no urine, but desire to pass it; pressure on hypogastrium painful, and provokes desire to pass urine; flatness on percussion of this region.

Ptisan as before. Catheter this evening.

April 8th, 8 A. M. By catheter last evening, two glasses of urine and this morning a third, which is slightly turbid, but of natural color. Face flushed; slight heat of skin. Thirst continues; nausea after drinking, but no vomiting; no stool; pain at epigastrium extending over whole abdomen and increased on pressure, especially at hypogastrium. Pulse 84; still desire to pass

urine without ability to do it. Voice very slightly hoarse.

Thirty leeches to hypogastrium; after which a hot cataplasm.

April 8th, 7 P. M. Tongue red; nausea, and very little vomiting; no stool; thirst continues. Constant desire to evacuate bladder, without being able to effect it.

April 9th, 9 A. M. Tongue somewhat dry; thirst; pain at epigastrium; very little vomiting during night; no stool. Pulse 84; skin warm; a little urine. Voice the same.

Thirty leeches to epigastrium.

April 10th, 7½ A. M. No sleep; very feeble. Tongue dry; thirst; nausea, no vomiting; no stool; pain at epigastrium continues. Pulse 80.

Warm bath.

April 10th, 6½ P. M. Great prostration; face flushed; skin hot. Tongue very dry; thirst urgent; slight nausea, but no vomiting; pain especially at epigastrium and also in other parts of abdomen; no tenesmus, no stool; pulse 84, very small; no urine and no desire to pass it. Voice always hoarse; no cramps.

Thirty leeches to epigastrium. Cataplasm to abdomen.

Solution of syrup of gum.

April 11th, 8 A. M. Abundant bleeding from leeches. Eyes fixed, haggard; disposition to stupor when left to herself. Tongue very dry; thirst continues; no nausea, nor vomiting; perhaps a small stool. Pulse 84; skin of natural warmth; urine. Voice very hoarse.

‘Ptisan Pectorale.’

April 12th, 8 A. M. Countenance very haggard; seems to hear, and answers with great difficulty; becomes daily more feeble and exhausted. Tongue very dry, not red, with brown coat; still some pain at epigastrium; no vomiting; small stool. Pulse 84, small; little urine. No cramps.

April 12th, 6 P. M. The same. Pulse 92, scarcely perceptible.

April 13th, noon. Lying on back with eyes open and fixed; countenance very haggard; pays no attention to questions. Tongue as yesterday; no vomiting; no stool. Pulse 96; skin hot.

Died April 13th, 9 P. M. No Autopsy.

M. Andral gave up his charge of the wards of St. Rosaire and St. Athanase on the 11th, as the increased numbers of patients required a new division of labor among the physicians, and new wards were opened for the subjects of cholera, to one of which M. Andral was now attached. Owing to this circumstance, there was no examination post mortem of this patient nor of several others, who died about the same time. This case needs only the autopsy to render it one of the most interesting of the cases I have collected, as we saw it from its very commencement.

CASE LIV.

St. Rosaire, 20. . . . Female Ward.

Under care of M. Andral.

A WOMAN æt. 32, ward-tender at this hospital for last two months, habitually enjoys good health. On April 6th, diarrhœa, which did not interrupt her usual work; on afternoon of 7th, a chill which was followed at 6 P. M. by an increase of the diarrhœa and by vomiting, obliging her to go to bed; during night, cramps.

April 8th, 8 A. M. Now, eyes sunken and encircled by a dark ring; pupils slightly dilated; lips violet; face livid, cold; hands also violet and cold; says she does not feel cold. Tongue cool, moist, white with numerous red papillæ at point; thirst urgent from the first; constant nausea and much vomiting of her drinks; pain in

loins, at epigastrium and rest of abdomen ; several stools. Pulse not felt at wrist, 104 by brachial artery ; says she has passed urine at her soles ; respiration 32, very costal ; complains of weight at chest. Intellect clear.

R. Pulv. Ipecac. gr. xxiv. in two doses, at an hour's interval. Take drink in small draughts.

Lemonade with syrup of gum arabic. Friction of limbs with oil of turpentine.

April 8th, 7 P. M. Much the same.

April 9th, 8½ A. M. No sleep in night ; eyes as yesterday ; face, nose cold ; says her feet are cold, they are cool only to the touch. Tongue pinkish ; no pain in abdomen ; frequent vomiting, watery ; frequent stools. Pulse 112.

R. Pulv. Ipecac. gr. xxiv. as yesterday.

April 10th, 7½ A. M. Great prostration ; no vomiting ; no stool ; urine.

Lemonade.

April 10th, 6 P. M. Still great prostration, but countenance rather better, of more natural color ; eyes less sunken, but still encircled by the dark ring. Tongue moist, white, without redness ; thirst continues ; no vomiting, nor nausea ; complains much of acute pain at stomach ; frequent tenesmus, but no stool ; no appetite. Pulse 72 ; hands cold ; a little urine. No cramps.

Infusion of mallows for enema.

April 11th, 8 A. M. Countenance fixed, expression approaching that of stupor ; answers with great difficulty. Tongue covered with thick, white coat ; great thirst ; bad taste in mouth ; pain at epigastrium ; nausea after drinking, but no vomiting ; several stools with colic. Pulse 96, small ; urine not scanty. Cramps slight.

Lemonade.

April 11th, 6 P. M. Face flushed and hot ; feels hot, and surface generally is so. Tongue moist, with a white coat ; thirst urgent ; pain at epigastrium increased on pressure ; no nausea after drinking ; no vomiting ; neither

stool, nor tenesmus. Pulse 96, small; no urine. Head-ache.

April 12th, 8 A. M. Is now asleep, and by neighbour's report slept all night; face flushed and hot. Tongue moist, with a light brown coat, red at its point; no vomiting; two very small, yellow, not very liquid stools; ward-tender says she makes much less complaint of pain in abdomen, but, on waking, she says she still suffers at the epigastrium. Pulse 90, pretty full; urine. No cramps.

April 12th, 5½ P. M. Great exhaustion and dejection. Tongue the same; great thirst; says now no pain at epigastrium, but suffers in chest, putting hand to lower end of sternum; no vomiting; no stool. Pulse 84, small; skin not hot; urine. Respiration 28; respiratory murmur full and natural in front part of chest. Voice still very feeble; no cramps.

April 13th, noon. Neighbours say she is constantly sleeping; now asleep, breathing deep and loud; does not answer questions; coma; a little vomiting once this morning. Pulse 84, small; skin not hot.

Ten leeches, five behind each ear. Cataplasm to feet, and sinapisms to thighs.

April 14th, 3 P. M. Has had leeches, etc.; lying with eyes open, much injected; cheeks deeply flushed but cool; legs drawn up, though she is on her back; is roused with great difficulty to show tongue; seems to labor in respiration, breathing heavily, often groaning; shows no sign of pain on pressure of epigastrium or rest of abdomen; does not reply to questions; is in a state very nearly approaching coma. Tongue red and very dry; thirst not very urgent; no vomiting; stools very small, white, watery, evacuated in bed. Pulse 80, small; hands and face cool; trunk hardly warm. Respiration 24, high, costal, irregular.

Died April 15th, 7 A. M. No Autopsy.

CASE LV.

St. Charles, 12. . . . Female Ward.

Under care of M. Louis.

DINGOUIL, æt. 70, of no profession, entered April 17th, 7 P. M. Well nourished; lives very much upon milk, taking occasionally a little wine and water, very rarely wine alone. Sick since 13th; for eight preceding days, diarrhœa (three stools daily) with rumbling in bowels, but no colic; at the same time headache and diminution of appetite, but no vomiting. On 13th, 8 A. M. considerable increase of diarrhœa without any preceding chill; no colic until the 15th; since then it has been increasing; heaviness at epigastrium since 15th; nausea and vomiting on 17th, abundant, yellow; cramps also since 17th, very severe, only in lower extremities; these continued through the night; dizziness and ringing in ears since invasion; urine very scanty since commencement; voice feeble since 17th; has kept bed since noon on that day, before only at intervals. Came to hospital on litter; took, on 15th, a ptisan of lime-flowers and mint, and three small enemata without laudanum.

April 18th, 8 A.M. Expression natural; countenance gay; face much wrinkled, a little cool, pale; eyes natural, not hollow; folds of skin of neck quickly effaced; hands somewhat cool, rest of body warm. Tongue moist, a little brownish at centre; thirst not great; anorexy; vomiting since entrance; pain and sensation of fulness in the left hypochondrium; occasional pain at epigastrium, none now; frequent rumbling in bowels; no sensation of either heat or cold internally. Pulse 92, regular, of its natural fulness. Respiration a little high and accelerated. Slight headache; senses sound, memory good; voice rather feeble.

Seltzer water. Solution of syrup of gum.

Four ounces of flax-seed tea with a scruple of laudanum for enema, three times.

April 18th, 4½ P. M. Got two enemata and has retained them; complains of feeling sleepy; feels feebler; gaiety has ceased; one cheek cool. Tongue red in centre, white on edges, dry; two vomitings. Pulse rather quick, pretty full.

Sinapisms to thighs. Seltzer water.

April 19th, 8 A. M. Face quite changed in its expression since yesterday, heavy; dosing; still pale, and lips slightly livid. Tongue dry at centre, with a white coat on root and edges; thirst; anorexy; nausea, has vomited three times after drinking; pain at epigastrium on pressure, sense of fatigue there; abdomen soft, and painful towards left iliac region only; no stool. Pulse 80, not very small; hands and trunk warm, not hot; very little urine. Respiration 24, costal. Headache increased since yesterday; sight, hearing good; a few cramps.

Four leeches to each side of neck. Drinks as before.

Sinapisms to lower limbs twice. Enema of flax-seed tea twice.

A very little diluted broth.

April 19th, 4 P. M. Leeches and sinapisms have not been applied. Says she has dosed the whole morning, and regrets that the leeches were not applied on that account. Expression of great prostration; does not remember interrogation of yesterday; cheeks cool, nose almost cold; hands not warm; folds of skin of neck remain indefinitely. Tongue as before; thirst not very urgent; constant nausea, but no vomiting; no stool; retains last enema, but evacuated first. Pulse 76, a little hard and full; is doubtful whether she has passed urine or not; respiration 24. No cramps.

Four leeches to each side of neck. Sinapisms to thighs twice.

Drinks as before.

April 20th, 8 A. M. Feels a little better since leeches; expression easier; less heaviness in head and more free-

dom of mind. Tongue moist, but slightly viscid; no thirst, nor appetite; sensation of fatigue and of fulness in abdomen, which is slightly tympanitic; no vomiting; no stool. Pulse 80, rather full; no heat. Respiration 24, not high; no urine. No cramps.

Same drinks. Four ounces of flax-seed tea for enema twice.

A little diluted broth.

April 20th, 4 P. M. Less disposition to sleep; face more flushed and warm, feeling so to patient even; folds of skin of neck slowly effaced. Tongue dry; alimentary canal and abdomen as this morning. Pulse 80; urine. Respiration 24, not high. Less headache.

Enema as before.

April 21st, 8 A. M. Face of natural temperature and expression natural; deep sleep, with more dreaming and restlessness than common during night. Tongue moist, a little white on the edges and natural in front; thirst not great; no nausea, nor vomiting; rumbling in bowels, but no stool. Pulse 80, regular, full; no heat; hands rather cool and of good color. No oppression. Asks for broth.

A little broth, and a very little rice. Drinks as before.

CASE LVI.

St. Charles, 11. . . . Female Ward.

Under care of M. Louis.

GIGUET, æt. 59, journeywoman, entered April 15th, 1 P. M. Not well nourished during winter; cough for seven months; hæmoptysis abundant three months since, again within last month; dyspnœa; pain between shoulders and emaciation for last three months; chills frequent for last three weeks, but no sweat at night. For eight days anorexy and nausea, but no diarrhœa nor vomiting;

no headache, nor constipation; had worked as usual, but eaten less on 13th; no sleep that night, nor the preceding; at 4 A. M. of 14th, while still in bed, sudden diarrhœa without preceding chill, but with slight colic; got up, though diarrhœa continued; but at 2 P. M. had severe chill with trembling, followed by increase of colic, diarrhœa and cramps, obliging her to go to bed; two hours after, she begun to vomit a yellow, bitter liquid, with some glairy matter, (three or four times); vomiting did not return during night, but diarrhœa continued increasing (thirty stools before morning, whitish, glairy and yellow liquid); urine was not suppressed; sweat so copiously that at midnight she was obliged to change her linen; headache and ringing in ears all night; voice feeble since 2 P. M. of 14th. Came on litter to hospital, being too feeble to have walked.

April 15th, 6 P. M. Face slightly livid, but warm; lips a little violet; eyes not sunken, rather black around them; occasional trembling, or chattering of lower jaw; very frequent cough, during which her face becomes very much injected and expressive of severe suffering; says cough produces an acute pain at epigastrium, shooting to back and between shoulders; hands warm, under the bed-clothes, neither livid, nor wrinkled; surface of trunk burning to the touch; she says she suffers from cold, especially at the stomach and between shoulders, internally, causing her to shiver. Tongue moist, natural; thirst not urgent; nausea constant, but not especially provoked by drinking; no preference for warm or cold drinks; no vomiting since 7 A. M., though frequent vain efforts; diarrhœa and colic continue; acute pain at epigastrium, as described above; none in rest of abdomen. Pulse 90, hard, rather full, occasionally intermitting; urine abundant as usual. Respiration 40, not high; coughs constantly. Headache less; sight good, no ringing in ears; mind clear; voice hoarse and feeble; cramps frequent, less violent than last night.

Friction and warmth. (I do not know whether any other treatment was followed during the night, as the above note was taken in the absence of M. Louis, who did not see the patient till the next morning.)

April 16th, 9 A. M. Cheeks and nose slightly violet; nose cold, rest of face warm; folds of skin of neck quickly effaced, natural; air of anxiety and malaise; says chief suffering is at epigastrium, as noticed last evening. Tongue moist, natural at the edges, slightly villous at the centre, of natural temperature; thirst urgent; nausea after drinking; two vomitings, glairy; whole abdomen painful on pressure, but especially epigastrium; and a pain which she compares to that from pressure, and describes as yesterday; frequent rumbling in bowels; abdomen somewhat tympanitic. Pulse 92, rather small; hands cool. Respiration frequent; considerable dyspnoea; sputa isolated, round, yellowish, opaque; on percussion flat on, below and behind left clavicle. Cramps frequent in fingers and calves of legs.

Friction. Gum mixture.

Four ounces of flax-seed tea with 3 ss. of laudanum for enema, every two hours.

April 17th, 8 A. M. No stool since the enema last evening. Feels better. Tongue moist; pain at epigastrium, etc. as before; colic; no vomiting; not much thirst. Pulse 84, regular, feeble; heat natural; urine. No cramps, except occasionally in right arm.

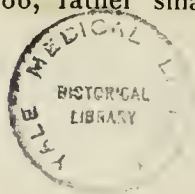
Pectoral pisan sweetened. Enema of flax-seed tea and white poppies.

Friction.

April 17th, 4 P. M. Tongue natural; pain as before; no stool; colic has ceased; says she feels great need of food. No cramps even in right arm.

A little broth.

April 19th, 9 A. M. No sleep; face always livid, but warm. No vomiting; no stool; pain at epigastrium much diminished; feeling of internal heat there. Pulse 88, rather small; urine still scanty. Respiration 44,



abdominal; dyspnœa less; still much cough; decided gurgling sound (gargouillement) under left clavicle; bronchial respiration under right. No cramps.

April 19th, 3½ P. M. Face livid; more cough, dyspnœa, distress and pain at epigastrium than this morning. Tongue the same; no thirst; no vomiting; no stool; slight colic and some pain on pressure of abdomen. Pulse 88; extremities and face rather cool than warm. Respiration 40; dyspnœa such that she speaks with great difficulty; pain in left side of chest; auscultation under clavicles same as this morning, on left side subcrepitous râle.

Eight leeches to left side of chest. Cataplasm afterwards to same part. Gum arabic mixture.

April 20th, 8 A. M. Considerable amendment in appearance; expression of face natural; some sleep. Tongue clean at centre, white at edges; thirst; scarcely any of former pains; vomited once after coughing. Urine not very abundant; no sweat in night. No cramps.

A little soup and broth.

April 21st, 8 A. M. Several vomitings of a bitter, green liquid; feels better since. Tongue nearly natural; little thirst; little appetite; some pain in abdomen on pressure. Urine. Cough considerable.

Potion of gum. Pectoral ptisan.

A little rice.

CASE LVII.

St. Rosaire, 23. . . . Female Ward.

Under care of M. Andral.

MARY COFFIN, æt. 63, street-merchant of journals; lives in the first story of an airy house; husband affected with cholera, and at present in this hospital. This woman is subject to epilepsy and sciatica, and has likewise been deranged for some time, so that it is not easy to

learn anything very exact from her. Diarrhœa for three days; vomiting of watery liquid since this morning (3d); cramps since arrival at hospital.'

April 3d, Noon. Face expressive of anxiety and suffering; talks incessantly, and thinks she has been poisoned; eyes hollow; nose cold; cheeks cool. Tongue cold, violet; abdomen soft and not painful; vomiting and diarrhœa continue. Pulse scarcely perceptible; says she has passed urine. Voice very feeble and hoarse.

Frictions with liquid ammonia.

April 3d, 6 P. M. Nose cold; conjunctivæ somewhat injected; hands cold, not wrinkled. Tongue dry and somewhat red; thirst very urgent; vomits after drinking; constant stools in bed, watery. Pulse 92, small, but pretty strong; says she has passed urine, but this quite uncertain. Respiration 48. Complains of ringing in ears, and asks to have them stopped up.

M. Andral is very desirous to bleed her immediately, but she will not consent to it.

Lemonade. Frictions.

April 4th, 9½ A. M. Great anxiety and restlessness; eyes sunken and encircled with a dark ring; face injected; lips violet; nose cold; skin generally cool. Tongue viscid and white; copious vomiting of a watery fluid, probably in a great measure composed of her drinks; constant, watery stools in bed. Pulse 108, small; respiration panting. Aphony; complains much of cramps.

Lemonade. (It is impossible to pursue any course of treatment, as the patient regards herself as poisoned, and will submit to none.)

April 5th, 10 A. M. Face red. Tongue white, somewhat viscid; no vomiting; diarrhœa continues. Pulse 100, easily felt; no urine; aphony.

Lemonade.

From the last date, the face remained always much flushed; there was considerable heat and excitement of the pulse; the tongue red and very dry; she became more and more prostrated, and at last died on the night of the 10th. No Autopsy.

CASE LVIII.

St. Athanase, 28. . . . Male Ward.

Under care of M. Andral.

PREVOT, æt. 50, water-carrier, entered April 4th, at noon; insufficiently nourished during winter, and for two years past much subject to indigestion. Was as well as usual when he went to bed on the evening of 29th, ult., but awoke at 9 P. M. with severe diarrhœa, which was not preceded by any chill, and was soon followed by copious vomiting of a bitter, yellow fluid; these symptoms continued severely till the 2d, on which day he was too feeble to continue his work, and went to bed; on this day the severity of the vomiting and diarrhœa was checked, but returned on the 4th.

April 5th, 9 A. M. Now, face of a straw-yellow color; slightly black round the eyes; nose cold; skin generally warm. Tongue dry and red at its point; thirst constant and urgent; pain at epigastrium, none in rest of abdomen; vomiting watery; seven or eight watery stools during night. Pulse 104, pretty full; no urine since entrance, but a desire to pass it; no tumor in region of bladder, pressure there not painful, but rather affords relief. Respiration 24, costal. Tone of voice slightly altered. No cramps. Was bled $\frac{3}{4}$ xii. last night; blood not buffed.

Gum-water sweetened with syrup of gum for drink.

April 5th, 6 P. M. Great anxiety, frequent sighs; says he feels very hot; hands and feet warm; slight injection of conjunctivæ. Tongue dry and red at its point; thirst; acute pain at epigastrium, much increased on pressure; in this region is felt a strong pulsation, though not noticed by the patient; frequent nausea and vomiting of a watery fluid, in which are seen numerous, small, white masses; frequent stools since morning. Pulse 120, full, hard; urine in very small quantity since morning. Respiration 28, mostly costal. Severe headache and pain along whole course of spine.

Thirty leeches to epigastrium. Enema composed of infusion of mallows and heads of poppies. Cataplasm to abdomen after leeches. Pure water for drink, as he prefers it.

April 6th, 8½ A. M. Leeches were applied immediately after visit, and bled well. Slept well; feels comfortably; good color of face; skin everywhere warm, except nose, which is cool. Tongue still dry at the point only; anorexy; thirst continues; some nausea, but no vomiting; one stool during night, without colic; cessation of pain in epigastrium, pulsation there continues. Pulse 100, pretty full; urine abundant during night. Respiration 24, costal.

Barley-water sweetened with syrup of gum. Two enemata of infusion of mallows and poppy-heads, with twelve drops of laudanum in each.

April 6th, 5½ P. M. Complains of feebleness only. Tongue dry; no pain at epigastrium; no vomiting; two stools with slight colic. Pulse 120; body warm; urine. Has never had cramps.

Barley-water for drink.

April 7th, 7 A. M. Expression and color of face good; skin generally of natural temperature. Tongue of good color; thirst not great; no appetite yet, though asks for broth because feeble; no vomiting, nor stool; complains of pain in hypogastrium. Pulse 100, a little hard. Voice still somewhat feeble.

A little diluted broth. Wine and water.

April 7th, 6½ P. M. Feels well; tongue natural; some febrile excitement.

Discontinue wine and water. Pure water, or syrup of gum.

April 8th, 7¼ A. M. Has slept well; skin everywhere warm. Tongue dry and red; anorexy; no vomiting, nor stool; pain on pressure about umbilicus. Pulse 92, well developed; urine. Voice still a little hoarse; no cramps.

April 8th, 6 P. M. Tongue well; no vomiting; appetite.

From this date to the 11th, the patient went on convalescent; appetite and strength returning slowly; and alimentary canal well.

CASE LIX.

St. Athanase, 31. . . . Male Ward.

Under care of M. Andral.

HERISSE, æt. 59, gilder, entered April 3d, at midnight. Well nourished and habitually in good health. Diarrhœa without colic or other symptom for fifteen days, when on 31st ult. sudden and great increase of diarrhœa during night, with colic and headache, not preceded by chill. Stools, as he says, looked like black water. These symptoms continued alone till 3d, when at 4 A. M. severe cramps in legs and feet only; vomiting for first time this morning (4th); matter vomited is a green liquid.

April 4th, 9½ A. M. Speech easy; intellect and memory clear; very slight lividity of countenance; lips of natural color; face and nose cool; eyes sunken and encircled with a dark ring; conjunctivæ not injected; pupils natural, as also expression of eyes; says he has no pain, and complains only of malaise. Tongue slightly red, with yellow coat at centre; thirst; nausea after drinking, but does not vomit; three or four stools since entrance; no pain in abdomen, which is soft. Pulse 92, hard, resisting compression; nothing unusual about heart; urine this morning and during night, uncertain as to quantity; skin warm and of good color. Respiration 20. Cramps less severe this morning than during night.

Lemonade with syrup of gum. To be kept warm in bed.

April 5th, 9 A. M. Black round the eyes, face somewhat livid, cheeks cool, nose cold; feet cold and violet, says they feel cold; skin of body of natural color; disposed to sleep. Tongue dry, red at point, with yellow coat at centre; thirst urgent; mouth clammy; no pain in abdomen; abundant vomiting and stools of a yellow liquid since yesterday. Pulse 92, regular, sufficiently full; skin cool; no urine for 24 hours; no desire to pass

urine, nor pain on pressure of hypogastrium. Respiration 16. Aphony.

Lemonade with syrup of gum.

Thirty leeches to epigastrium. Rub limbs with liniment of ammonia.

April 5th, 6½ P. M. Bleeding from leeches still continues; after bleeding slept well. Tongue very dry and red, with two white lines on its lobes; frequent tenesmus; one stool only; two vomitings of a porraceous, green, bitter liquid. Pulse 100, well developed; skin warm; no urine; respiration calm, slightly costal, 22. Countenance better than this morning.

Lemonade.

April 6th, 9 A. M. Has had pretty good sleep; countenance tranquil; face of natural color; nose still cool; less black round the eyes. Tongue red at point, viscid; thirst less; no vomiting; no pain in abdomen; some tenesmus, but very small stools. Pulse 80, full; no urine. Respiration 20. Cramps have ceased. Voice stronger.

Barley-water for drink. Two enemata, each ʒ viii. with the addition of twelve drops of Rousseau's laudanum to each.

April 6th, 6 P. M. Same as this morning. Two vomitings of a yellow liquid; two or three stools.

April 7th, 7 A. M. Feels well; face of good color; nose only cold; rest of skin warm. Tongue red and dry; no vomiting; no stool. Pulse 80; no urine.

Lemonade.

April 7th, 7 P. M. Much the same.

April 8th, 7½ A. M. Tongue red, clammy, anorexy; little thirst; no pain in abdomen; no vomiting; three or four yellow, watery stools. Pulse 76; urine.

A little broth diluted with water. Lemonade.

April 9th, 10th, 11th. Went on well; no return of symptoms in the alimentary canal. Pulse about 80, natural; urine became abundant; no cramps; appetite and strength returning. Convalescent.

CASE LX.

St. Paul, 15. . . . Male Ward.

Under care of M. Louis.

ROBE, æt. 35, tinman, entered April 16th. Well nourished, lives in a comfortable room, commits no excesses, robust. Six weeks since he had dysentery (bloody stools) for eight days, without any diminution of appetite or strength, as he says; he recovered perfectly, and on the 11th, arrived in Paris at 4 A. M. from Chateau de Thiery, whence he had walked since the same hour of the preceding day (22 leagues); he did not go to bed on his arrival, but slept all the following night and the whole day of the 12th, without once waking; in the evening he ate with a good appetite. The next day (13th,) he had diarrhœa, (five or six stools without blood); at noon he began to drink wine as he found himself thirsty, and in the course of five or six hours drank about two pints, eating at the same time. During these six hours he had no stool; he was not intoxicated, but was restless and had two more stools during the night. Yesterday (15th,) twelve stools; and three to-day; thirst without nausea, or vomiting from debut; urine not suppressed; no cramps; feels slightly enfeebled, but came to hospital on foot.

April 16th, 5 P. M. Face natural, rather that of robust health than of disease; eyes not sunken; heat natural. Tongue moist, whitish, not villous; thirst urgent; prefers cool drinks; anorexy; mouth a little bitter; no pain at epigastrium. Pulse 68; no cough; no oppression.

Sweetened rice-water with lemon-juice. Four ounces of flax-seed tea with a scruple of laudanum for enema, twice.

April 17th, 8 A. M. Feels better. No nausea; three stools; tongue moist; thirst continues. Pulse rather small, 80; urine free. A little cough in night. Voice feebler; no cramps.

Continue treatment.

April 17th, 4 P. M. Face rather cool and livid ; eyes a little sunken and encircled with a dark ring ; slight expression of heaviness, but not of pain ; on the contrary the patient smiles when speaking ; folds of skin of neck not effaced quite so quickly as in a healthy subject. Tongue moist, whitish, of good temperature ; thirst increased ; no pain in abdomen even on pressure ; he has vomited several times since noon a very clear, somewhat frothy fluid without color, at the bottom of which are seen two or three masses of mucus. Pulse 100, regular, rather small ; urine abundant. Respiration 20, somewhat high ; no dyspnœa. Voice much feebler than this morning, amounting almost to aphony ; says he does not feel more feeble ; senses good ; no cramps, nor pain in limbs.

Frictions. Lemonade. Four ounces of flax-seed tea, with two scruples of laudanum, for enema, every two hours, three times.

April 18th, 7 A. M. Has taken three enemata. Expression of face more natural ; nose cool, the rest of face of its natural warmth ; temperature of body natural. Tongue moist, whitish ; thirst ; often vomits after drinking, the same material as yesterday, not bitter ; one stool ; complains of pain in course of transverse colon, which he refers to desire to vomit. Pulse 92, not smaller than natural ; urine abundant. Respiration 16, somewhat high and unequal. Slight headache ; no cramps, nor pain in limbs ; voice less feeble.

Continue treatment.

April 18th, 4 P. M. Says he has slept much during day ; face less natural. Seven or eight vomitings of a white, colorless liquid, without any distinct flakes of mucus ; no stool. Pulse 88, pretty full ; urine twice.

Continue treatment.

April 19th, 9 A. M. Tongue moist, white ; thirst greater ; no pain at epigastrium ; vomiting very slight ; no stool. Pulse 80 ; heat natural ; urine. Respiration 16, not high. Senses and mind natural.

Seltzer-water. Flax-seed enema with six drops of laudanum, twice.

A very little diluted broth.

April 19th, 4½ P. M. Face natural, flushed, warm; folds of the skin of neck quickly effaced. Tongue moist, somewhat white in front and more so behind; one vomiting; no stool; no pain in abdomen. Pulse 84; heat slightly elevated; urine. Little headache; no cramps.

April 20th, 8½ A. M. Feels better than last evening; no nausea, nor vomiting; tongue moist, whitish; no pain in abdomen; one stool at 11 P. M. Pulse 72; heat natural; urine easy, frequent. No headache; senses perfect; says he has appetite.

Continue treatment.

April 21st, 8½ A. M. Tongue moist, white at centre; no nausea, no vomiting, no pain in abdomen, no stool; thirst urgent, wishes cold drinks. Pulse 104, not decidedly fuller than natural; heat now natural, but says he had fever (intense heat and copious sweat) during night. Respiration 32; no sense of oppression; respiratory murmur natural in front and behind. Says he has coughed at intervals for several years.

Continue treatment.

April 21st, 4 P. M. Face much flushed. Tongue and alimentary canal as this morning. Pulse 108, somewhat hard. No headache; no drowsiness; no pain in any part.

V. S. ad. 3 x.

April 22d, 8 A. M. Blood not buffed; has slept much better, without sweating. Alimentary canal the same; a little sense of oppression at epigastrium. Pulse 104.

Continue treatment.

April 23d. Frequent cough during night; heat continues. Tongue moist; thirst urgent; two stools yesterday; pain on the right of epigastrium on coughing; sputa whitish, not very adhesive, and transparent for the most part, five or six however being of an orange color. Respiration 40, not high, equal. Pulse 104, not large;

copious sweat during night; heat now not very great. On percussion, the sound is dull in the upper part of the right side of chest behind, in the lower it is clear; on auscultation, a very marked bronchophony is heard in this upper part, and below it a fine crepitous râle; on the left side, behind, a slight and occasional crepitation; the same, though slight, under the right clavicle and mingled there with a loud respiratory sound; percussion a little flat under the right clavicle.

Infusion of violets sweetened. Mixture of gum-arabic with six grs. of kermes and syr. of poppies $\frac{3}{4}$ iss.

V. S. ad. $\frac{3}{4}$ xv.

April 24—May 10. It is useless to give farther detailed notes upon this case. It is evident that there existed a pneumonia, which had already advanced to the second stage in one lung, and was just commencing in the other. It is enough to add that no symptoms of cholera made their appearance,—that the pulmonic inflammation was subdued by repeated bleeding and the kermes mineral, and that some days before he left the hospital well, the respiratory murmur had become everywhere natural, the flatness on percussion had disappeared, the pulse was reduced, and appetite and power of digestion had returned.

This is an extremely interesting case, because it grew up under our eyes. The question must naturally occur to every reader whether this secondary inflammation of the lungs, and the consequent protracted illness and danger of life might not have been prevented by a more vigorous antiphlogistic treatment at the very moment of commencing reaction. It is a question which cannot be decided. But for myself, the results of this reaction, fraught as they are with the most imminent danger to life, impress more and more strongly upon me the necessity not only of an immediate, but an active treatment, in cholera, at the very first moment when such treatment is practicable. It is often easier to prevent than to overcome these secondary inflammations, which so frequently occur, and are so often the immediate cause of death in all febrile diseases.

OBSERVATIONS

ON THE FOREGOING CASES, WITH TABLES.

THERE are numerous important points connected with the natural history of cholera, upon which no general inferences can be safely made from sixty cases. Yet, perhaps, from an exact study of these cases, though limited in number, some important deductions may be obtained, such as must always be true to a certain extent, though we cannot decide in exactly what proportion of cases they are so.

No law in science can be considered as well established, unless it be rigorously deduced from accurately observed facts. The precise and honest student of pathology, therefore, must be ever slow to admit as truth that which is founded upon the *general impressions* of any observer or observers, however cautious and however talented. It was from a keen perception and a most strong conviction of the errors necessarily resulting from this course, that M. Louis, of whose talents and works I have already expressed my warm admiration, some years since introduced what is called the *numerical system* into the study of pathology. This system has been adopted with eagerness and benefit by some of the most distinguished of the French pathologists. This is not the place to enter into a detailed account of it, nor to discuss its merits. The name is indicative of its fundamental principle. Is it not the only mode of arriving at an exact knowledge of the natural history of disease? It may be misused, it is true. No one is more aware than its founder, that, if not used with caution and under pro-

per limitation, it may lead to great error. Endeavoring not to neglect this caution, nor to forget these limitations, I shall now present an analysis of the cases just related, made after the manner adopted by the numerical school.

The same individual cases are not included in each of the following tables; for the same point was not noticed in every case: hence the numbers are not the same in all the tables. The deficiency is partly owing to my own negligence, and partly to the absolute impossibility of examining many individuals as to all the minutiae of their previous and actual conditions, from the extreme severity of their sufferings.

Abode and Profession.—As my observation was entirely confined to one quarter of the city, it is impossible for me to give any comparative view in regard to places of abode. For this I must refer to other sources. As to the professions, it is perhaps enough to say that all patients admitted to La Pitié belong to the laboring classes.

SEX.

	Male.	Female.
Cases,	28	32
Recoveries,	12	9
Deaths,	16	23

Whether the greater fatality among females in these sixty cases be accidental or not, I do not know; but I have understood that it corresponds with the general result of the observations made at Paris.

HABITUAL NOURISHMENT.

	Sufficient.	Insufficient.
Cases,	32	10
Recoveries,	17	1
Deaths,	15	9

The immense proportion of recoveries in favor of those who were habitually well nourished, is not perhaps greater than might have been anticipated. It should be remarked

that the terms sufficient and insufficient have reference to the quantity and not the quality of the food, which the individual was able to procure. Those patients only have been said to be insufficiently nourished, who declared that they often had not enough in the twenty-four hours to satisfy their actual hunger. In this statement, then, is involved no theoretical opinion, as to the different effects of an animal and a vegetable diet, or of vinous and malt liquors. As a general remark, it may be stated, that the lower classes of Paris live much more upon a vegetable diet, than the same classes in New England.

AGE.

From 1 to 10 years no case.

Years,	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Cases,	2	8	14	9	12	12	2

The first maximum according to this table would seem to be between 30 and 40 years of age, and the two second maxima between 50 and 60, and 60 and 70. But, if we remember that in any given population the proportion of individuals between 30 and 40 is vastly greater than that of those between 60 and 70, we shall see that the real first maximum is between 60 and 70. It may be asked if children were admitted to the hospital of La Pitié. They were; I have given the case of a boy of 14 years of age, and saw three or four others still younger. None of these were fatal.

Perhaps a more important view, as regards age, may be obtained from the following table; always bearing in mind that the number of individuals under 40, in any population, is vastly greater than that of those above it.

	1-40	40-80
Cases,	24	35
Recoveries,	13	8
Deaths,	11	27

Hence we see that the mortality is rather less than one half from 1 to 40 and rather more than three-fourths

from 40 to 80. It may be worthy of remark that there was no death under 20 years of age.

PREVIOUS HEALTH.

	Good.	Bad.
Cases,	24	14
Recoveries,	13	4
Deaths,	11	10

It is here necessary to observe that in all probability the proportion of individuals in good previous health was considerably greater than is indicated by the above table. Of 60 cases I find mention of the health of 38 only in my notes, something less than two-thirds. It was assuredly an oversight not to have noted at the moment whatever regarded the previous condition of each patient. I feel satisfied however that, where the health was previously impaired, notice was taken of it; while in those, where it was good, the point was not always noted in my case-book. This circumstance would make the proportion of cases of those in good health as compared with those in bad health to be rather more than 3 to 1, instead of being less than 2 to 1, as it is in the foregoing table. Again, the proportion of deaths in the two classes of cases would be more nearly equal, as the other 18 fatal cases would be included in the healthy class. I believe that this was the truth; and I insist upon this, because I was much surprised, 1st. at the large proportion of healthy and robust subjects affected by cholera; and 2d. at the small number of subjects, in whom we found on dissection any marks of active, or important chronic disease.

PRECURSORY SYMPTOMS.

	Present.	Absent.
Cases,	35	20
Recoveries,	14	6
Deaths,	21	14

The difference in the mortality of these two classes of cases is not very great. This table shows however that

the remark, so often made, that the disease is uniformly preceded by precursory symptoms, is far from being true. It would be very interesting to have comparative tables upon this point, of patients with cholera, in the easy and in the poorer classes of society. I am inclined to think that the precursors were wanting in a much greater proportion of the former, than of the latter. For in the upper classes, those slight symptoms of gastric and intestinal derangement, which are the most usual forerunners of the disease, when its attack is not sudden, attract instant attention, and by due means, hygienic and medicinal, the progress of the affection is arrested before it has reached such a height as to acquire the name of cholera. In the lower classes, on the contrary, these early symptoms, if observed, are neglected, or even in many cases aggravated by some injudicious treatment; and the consequence is that a larger proportion of these terminate in serious disease. This is probably one, though by no means the sole cause of the less general prevalence of the epidemic among the rich, than among the poor.

DEBUT.

It is interesting and important to know what is usually the first symptom of the disease. The tables upon this point have reference to the three most uniform local symptoms: diarrhœa, vomiting and cramps. We would not be understood to say that the disease actually commences, in all cases, with either of these. Our notes bear record to the contrary. Loss of appetite, headache, or a general disturbance of the system, producing what the French term '*malaise*,' frequently precede the symptoms above-named. On the other hand, in the majority of cases, one of the three symptoms enumerated is the very first, indication to the patient that his health is disturbed; and I believe it may be said that in no case have there existed any other symptoms, either local or general, sufficiently severe to make him consider himself a diseased man, prior to the appearance of one or more of these three local symptoms.

At least, I do not remember a case in which, previously to their occurrence, the patient was obliged to interrupt his usual occupations.

	Diarrhœa.	Vomiting.	Cramps.	Vomiting and Diarrhœa.
Cases,	49	2	1	5

It may be asked whether the disease be often, or generally, ushered in by a chill or rigor. Unfortunately this question did not occur to my mind, until I had already collected a considerable portion of the cases above related; so that in many no notice is taken of it. This very circumstance, however, is of itself a pretty strong proof that the disease does not often commence with a very severe and decided chill, such as we see in many acute affections; else it would have been adverted to by the patients in relating their cases.

	Chill.	No Chill.
Cases,	9	18
Recoveries,	5	7
Deaths,	4	11

It would seem by this table that the mortality was considerably less in those cases which were, than in those which were not, preceded by a chill. Whether this be accidental in our cases, or whether it be the expression of a general truth, we cannot pretend to determine. It is a point well worthy of investigation. I would repeat, as a peculiar circumstance in cholera, and therefore deserving of notice, that only one or two patients, at most, represented themselves as having had anything like a severe chill.

REACTION.

	None.	Slight.	Full.
Cases,	22	8	30
Recoveries,	0	0	21
Deaths,	22	8	9

By slight reaction I mean a slight elevation of the pulse and return of heat to the surface, which were only

momentary, and were soon followed by a second and fatal collapse. By full reaction I have reference either to a preternatural excitement of the pulse and increase of the heat generally, with more or less decided symptoms of a local affection, or to a return of the pulse and surface to their ordinary standard with an uninterrupted convalescence. Of this last description a pretty large proportion were very slight cases, scarcely deserving the name of cholera; which we are nevertheless willing to retain under this name, in order to diminish, in appearance at last, the frightfully long catalogue of fatal cases.

SYMPTOMS.

It seems to me advisable, even at the risk of being thought too minute, to consider the symptoms, I. of those cases, in which reaction either did not occur, or was only very slight and very transient; and II. of those, in which full reaction occurred. In these last, the symptoms before and after reaction must be separately considered. These distinctions exist in nature and are very essential both for prognosis and for practice. Unless familiar with them, one is far from being well acquainted with the disease. It is surely a less error, in the study of a new and obscure subject, to be too minute, than to be too general. It is, as I suspect, from the enumeration of cases of cholera under the same head, which in the all-important circumstance of severity, or degree, were far different from each other, that so many contradictory statements as to the success of remedies have arisen. It is the danger of errors like this, of which the opponents of the numerical system constantly warn its supporters; but no one is more aware of it, or by his uncommon talent of discrimination more successfully avoids it, than the founder of this system. Most assuredly it is one of the greatest, perhaps the most dangerous error to which this system is liable; and my apology for the very minute mode, in which I am about to treat of the symptomatology of cholera, is an ardent desire to avoid the errors, theoretical and practical, which must of necessity result

from grouping together, as similar, things which are in themselves dissimilar.

I. Symptoms of cases, in which no reaction occurred, or where it was very slight and transient.

1st. DIGESTIVE APPARATUS.

	Pain in Abdomen, chiefly at Epigastrium.		Vomiting.		Diarrhœa.	
	Present.	Absent.	Present.	Absent.	Present.	Absent.
Cases,	21	7	29	1	30	0
Deaths,	21	7	29	1	30	0

I am well aware that I might with apparent advantage have been more minute in the division and sub-division of the symptoms in this table. On one point, especially, accurate information would be very interesting, and might prove ultimately useful; I mean as to the nature of the materials vomited and evacuated from the bowels. But this is a subject, upon which it is impossible to acquire very exact information in a hospital, from obvious circumstances; such as the crowding of many individuals into the same ward, the comparative scarcity of attendants and of utensils, etc. It may be thought that colic should have been one head in this table; but, although this symptom was of rather frequent occurrence, it was almost uniformly so slight, as not to form an essential or prominent feature of the disease.

2d. RESPIRATION, CIRCULATION, &c.

PULSE.			SURFACE.		RESPIRATION.		
Wanting.	Thread-like.	Frequent.	Very cold and livid.	Slightly cold and livid.	Costal & frequent.	Natural.	
Cases,	7	23	15	26	4	23	4

URINE.

Suppressed.		Scanty.	Natural.	Returned.
Cases,	17	9	0	2

The affection of the respiration was very peculiar, and more constant than I have ever remarked in any other acute disease; rapid, high and almost entirely costal. Dyspnœa, or a sense of oppression, which generally origi-

nated at the epigastrium, was a very common symptom, and was almost uniformly connected with the high and rapid respiration.

3d. ANIMAL SYSTEM.

VOICE.			CRAMPS.	
	Extinct.	Feeble and hoarse.	Present.	Absent.
Cases,	21	7	28	2

There should be noticed under this head the extreme and sudden prostration which existed in almost all the cases. There might also be enumerated a variety of symptoms, which occurred more or less constantly, but which were generally slight, and such as accompany every serious disturbance of the animal economy. Head-ache and some obscurity of the sight with occasional ringing in the ears, or dizziness, not unfrequently occurred; but scarcely ever in such a degree as to excite much complaint, or even to be mentioned by the patient, unless he were questioned concerning them. The mind in the early stages, prior to reaction, is always clear; but it is of course incapable of much exertion. For the mental like all the other powers are prostrated, but in no case that I saw were they irregular in their action. The entire and complete preservation of the memory is peculiarly remarkable.

II. Symptoms of cases in which full reaction occurred.

First. Symptoms before reaction.

1st. DIGESTIVE APPARATUS.

Pain in abdomen, chiefly at epigastrium.			Vomiting.		Diarrhœa.	
Present.	Absent.		Present.	Absent.	Present.	Absent.
Cases,	15	13	29	1	30	0
Recoveries,	8	11	20	1	21	0
Deaths,	7	2	9	0	9	0

The mortality seems to have been considerably greater in those cases, in which there was pain in the abdomen, than in those, in which it was wanting. It may be well

to observe that of the sixty cases there was not one, in which diarrhœa did not exist; and only two, in which there was no vomiting. As to the comparative amount and nature of the stools in this second and in the first class of cases, we have no accurate information, for reasons stated before. This is a point which should be investigated if possible. It would be very interesting, for example, to ascertain whether reaction ever occurred after such and such stools; or, in other words, whether there were any peculiar alvine evacuations, which would lead to a favorable and others to an unfavorable prognosis.

2d. RESPIRATION, CIRCULATION, &c.

	PULSE.				RESP.		SURFACE.			URINE.		
	Wanting.	F. ble.	Frequent.	Natural.	Great 1 and Frequent.	Natural.	Very cold and livid.	Slightly cold & livid.	Natural.	Suppressed.	Scanty.	Natural.
Cases,	1	16	24	13	23	5	6	11	13	18	4	7
Recover's,	0	8	15	13	15	4	2	7	12	12	2	7
Deaths,	1	8	9	0	8	1	4	4	1	6	2	0

We see then, that neither a very feeble pulse, nor great coldness and lividity of the surface nor an actual suppression of urine are absolutely fatal symptoms. It should be observed that of our cases not one recovered, in which there existed both great coldness of surface and complete suppression of urine.

3d. ANIMAL SYSTEM.

	VOICE.			CRAMPS.	
	Extinct.	Feeble and hoarse.	Natural.	Present.	Absent.
Cases,	6	20	1	27	3
Recoveries,	3	14	1	18	3
Deaths,	3	6	0	9	0

Second. Symptoms after reaction.

	PULSE.		
	Larger.	More frequent.	Slower.
Cases,	18	10	13
Recoveries,	13	9	7
Deaths,	5	1	6

	HEAT.		URINE.
	Natural.	Preternatural.	Returned.
Cases,	11	18	15
Recoveries,	11	10	12
Deaths,	0	8	3

	CONVALESCENCE.	SYMPTOMS.			
	Without accident.	Cerebral.	Abdominal.	Thoracic.	Comatose.
Cases,	12	9	4	4	5
Recoveries,	12	2	2	4	0
Deaths,	0	7	2	0	5

From this table it is evident that a diminution of the frequency of the pulse after reaction, unless it be attended with immediate convalescence, is more unfavorable than an increase in either force or frequency. It should be remarked however, that it is very rare to find a strong, full, inflammatory pulse, such as often exists in common fever and in the ordinary local inflammations, at any stage of this peculiar disease; also, that the heat is very rarely much elevated above its natural standard, though instances of this do occasionally occur.

We see that a return of the renal excretion, though a favorable sign, is by no means always indicative of safety.

By a state of convalescence without any accident I mean that state without any symptoms of an internal inflammation, such as to interrupt the reestablishment of the healthy functions. The patient often remains quite feeble for two or three days, and sometimes even eight or ten days; and the stomach does not always at once recover its ability to digest food.

By cerebral symptoms I have reference to headache, drowsiness, coma, or delirium, which last occurred in two patients only. We ought here to remark that three of the patients, in whom there occurred only a very slight and transient reaction, and whose cases are enumerated in the first class, died in a state of coma. A reference to these cases will show that the duration of the shortest of them was nearly three days.

By abdominal symptoms I mean to refer to the obstinate continuance of the abdominal pain, of the vomiting, or of the diarrhœa, or of all three of these.

Of the cases, in which thoracic symptoms were observed, two had pneumonia; and in the other two, who were tuberculous, an acute inflammation of the lung was induced around the tubercles during the stage of reaction. By this inflammation the development of the tubercles and the ultimate fate of the patients were undoubtedly hastened. To these and several other cases of pulmonic inflammation, which were entirely latent, I shall again refer.

We shall give one other table which will indicate the very marked difference in the *severity of the early symptoms*, local and general, of the great classes into which we have divided these cases.

	Pain in the Abdomen.	PULSE.		SURFACE Cold & livid.	URINE.		Aphony.
		Wanting.	Feeble.		Suppressed.	Scanty.	
1st Class,	21	7	23	26	17	9	21
2d Class,	15	1	16	6	18	4	6

The distinction is but too obvious; most especially so in that all-important circumstance of the extreme prostration, as indicated by the state of the voice, the pulse and the surface. This leads, of necessity, to a very unwelcome conclusion, viz: that the class of cases, in which only recovery occurred, was mainly composed of those which were comparatively mild at their origin. It is the duty of the medical man to look truth steadfastly in the face, however hideous may be her aspect. I will add, then, that of the twenty-one cases which recovered, six were exceedingly light, not at all equalling in severity an ordinary case of sporadic cholera, or dysentery; and that many of the remainder were by no means very severe. I do not thus draw the attention of the reader to this unhappy view of the subject, in order to discourage his future efforts, should it ever be his duty to contend against this hitherto invincible enemy; but in

order that he may the more deeply feel its importance and the more efficiently prepare himself.

The following table will indicate the *duration of the different cases*.

	Hours.	Days.						
	12-24	1-2	2-3	3-4	4-5	5-6	6-10	15-20
Cases,	6	5	6	12	9	7	12	1
Recoveries,	0	0	0	7	3	4	6	1
Deaths,	6	5	6	5	6	3	6	0

MORBID APPEARANCES.

Before adverting to the various modes of treatment and their results, which our cases may afford, I think it best to give a numerical view of the morbid appearances of the most important organs, on dissection. In doing this I shall follow the same general divisions and pursue the same general order, as I have already in the detailed notes and the tables of symptoms.

I. Morbid appearances in the bodies of those, who died before reaction.

1st. Digestive Organs.

For an exact description of the contents of the alimentary canal, the detailed account of each dissection must be consulted. It will suffice for the present purpose to divide these contents under three general heads, as follows: 1st. A white, or greyish fluid, holding in suspension either mucus, or those small white flakes, which have been so much insisted upon, and which seem to me to consist of coagulable lymph. 2dly. A yellow, or green fluid containing these same flakes, or mucus, which is sometimes adhesive and transparent, and sometimes opaque and purulent. This fluid owes its color to the presence of bile. 3dly: A fluid of a pink, brownish, brick-dust, or other red shade, into which it is evident that the coloring matter of the blood enters as a component. In this last, also, as well as in the other two, is frequently found an abundance of small shreds, resem-

bling, to my eye, sometimes mucus, and sometimes coagulable lymph; and not unfrequently likewise we saw myriads of very minute brownish corpuscula, not unlike very fine snuff. To these three chief varieties of fluids may be added a fourth, which was not very common, however, viz: a pure and unmix'd, whitish yellow material, which resembled, both in color and consistence, purulent mucus.

	White fluid, &c.	Yellow or green, &c.	Red, &c.	Puriform.
Stomach,	7	10	3	0
Small Intestines,	3	5	12	0
Large Intestines,	1	1	15	3

It appears, from this table, that a red fluid was by far the most common, though not constant, nor existing equally in all parts of the canal. Of the twenty cases, there were only four, in which this red fluid was not found in some portion of the canal. I am well aware that this does not accord with what has been stated by some of the writers in the eastern countries of Europe. I shall not attempt to explain this discrepancy. Without impugning the accuracy of others, I may be permitted to vouch for the truth of my own statements, because an eye-witness of what I relate. It is due to these writers, however, to state that the small shreds or granules before described, do exist in a vast majority of cases, their color depending in each case upon that of the liquid, in which they are suspended. In stating the proportion of each of these fluids, in each part of the canal separately, I would not be thought to consider it as uniformly true, that the morbid materials were secreted from that portion of the canal, with which they happened to be in contact at the moment of death. They may have, and undoubtedly they often did, come from a superior part of the canal. Before leaving the subject of the contents of the alimentary tube, it should be remarked that in many cases, besides the flakes of mucus floating in the contained liquid, there was also a quantity of mucus closely

adherent to the internal surface of the organ. This was observed most frequently in the stomach.

We have already considered the secretions of the mucous membrane of the stomach and bowels. In order to estimate properly the morbid condition of this membrane, we must now take notice of its color and structure. A general view of our cases on these important points will be given under the following heads: 1st. Natural color and consistence. 2d. Redness, by which I mean a fine injection of the mucous membrane itself, and not of its subjacent tissue only. 3dly. Change of structure or of consistence, including the 'mamelonnement' or granulation, an increase or diminution of thickness, or a diminution of consistence; one or several of these with or without redness. 4thly. Ulceration. 5thly. Enlargement of Brunner's glands.

MUCOUS MEMBRANE.

	Natural in color and structure.	Redness.	Change in structure or consistence.	Ulceration.
Stomach,	2	1	17	1
Small Intestines,	7	4	9	2
Large Intestines,	4	6	10	1

Glands of Brunner.

	Enlarged.	Not enlarged.
Small Intestines,	16	4

It is worthy of remark that there was only one of these cases, in which there was neither increased vascularity, nor change of structure in the mucous membrane of any part of the alimentary canal; and in respect to this case it should be added, that its duration was somewhat less than twenty-four hours, and that a vast quantity of serous fluid existed throughout the whole tube. The ulceration of the small and large intestines was, in one case, evidently chronic and connected with tuberculous disease of the lungs. In the other, where the ulceration existed in the small intestines only, occupying two large patches

of Peyer's glands, the ulcers seemed more recent and the lungs were not tuberculous. The crypts, or glands of Brunner were often observed to be much developed in the large, as well as in the small intestines; but as this circumstance was often omitted in the description, we have no means of ascertaining the proportion of cases in which they were so. In one of the above cases, there were several gangrenous sloughs in the large intestines entirely separated from the surrounding tissue; and from two others, in which the mucous membrane was extremely friable, there exhaled a semi-gangrenous odor. In one case there were decisive marks of acute peritonitis, and in several the peritoneum was quite dry.

I shall defer all discussion of the value or due estimation of these different secretions and various conditions of the mucous membrane, as affording evidence for or against inflammation, to a future occasion. This part of my paper is devoted exclusively to the representation of the facts I have observed, and not to their interpretation.

LIVER.							SPLEEN.
	Natural.	Fatty.	Engorged.	Friable.	Bile.		Natural.
					Dark green.	Yellow.	
Cases,	15	1	1	3	15	1	20

2d. *Circulatory, respiratory and excretory organs.*

HEART.				
	Natural.	Hypertrophv.	Liquid or curdled black blood.	Coagula.
Cases,	11	8	10	10

AORTA.		
	Liquid black blood.	Coagula.
Cases,	9	3

LUNGS.					
	Natural.	Engorged.	Hepatized.	Emphysematous.	Tuberculous.
Cases,	6	5	1	6	4

KIDNEYS.			BLADDER.			UTERUS.	
	Natural	White fluid in infundibula.	Contracted Little white fluid.	Distended. Urine.	Urine.	Empty	With red fluid.
Cases,	12	8	15	2	1	3	2

The hypertrophy of the heart, which was so often met with, was uniformly concentric. It was in no case accompanied with any œdema of the lower extremities, and I think in one only with any obstruction at the orifices of the organ. The dryness of the pericardium, so frequently noted, should not be here forgotten. It was observed in six of the twenty cases now under consideration.

In one only of the four tuberculous cases had the tubercles yet reached the stage of softening, or suppuration. Indeed in the three others the disease was very limited in its extent, and had not advanced beyond the very earliest stage, the grey semi-transparent granulations only. The number of cases, in which vesicular emphysema of the lungs existed, is quite worthy of notice, as showing the frequency of this affection.

3d. *Organs of the Nervous System.*

BRAIN.				
	Injection of the membranes.	No congestion.	Slight congestion.	Great congestion.
Cases,	8	6	11	1

Effusion under the arachnoid.		Ventricles.	
		Empty.	Containing a little serum.
Cases,	6	3	10

MEDULLA SPINALIS.		SEMILUNAR GANGLION.	
	Natural.		Natural.
Cases,	5		13

In the organs of the nervous system we find no evidence of disease, unless it be a certain degree of congestion of the great central organ and its membranes in several cases, and in one (No. II.) a considerable quantity of red serum in the ventricles. In no one case did we discover that peculiar morbid condition of the semilu-

nar ganglion, which has been insisted upon by M. Delpech as the cause and seat of cholera.

II. Morbid appearances in those subjects dead after full reaction.

1st. Digestive organs.

	White fluid, &c.	Yellow or green, &c.	Red, &c.	Purulent mucus	Fæces.
Stomach,		9		1	
Small Intestines,		8	2		
Large Intestines,	3	3	1		2

It is important to notice here the much greater proportion of cases after, than before reaction, in which a yellow or green fluid, in other words, a fluid tinged with bile, is found in the stomach and small intestines. Before reaction it was found in the stomach in one half of the cases, and in the small intestines in one-fourth only. After reaction the proportion rises to nine-tenths in the first organ and to four-fifths in the second. Another important and striking difference, as regards the contents of the canal in the two classes of cases, is the much smaller proportion in this second class, in which a red fluid was found: this proportion was four-fifths before and one-fifth after reaction.

MUCOUS MEMBRANE.

	Natural in color and structure	Redness	Change of structure or consistence	Ulceration.
Stomach,		2	8	
Small Intestines,	3		6	1 chronic
Large Intestines,	3	4	2	1 chronic

Glands of Brunner.

	Enlarged.	Not enlarged
Small Intestines,	7	3

LIVER.

SPLEEN.

	Natural.	Engorged.	Friable.	Bile Dark green.	Yellow.	Natural.
Cases,	9	1	0	6	1	10

2d. Circulatory, respiratory and excretory organs.

HEART.					AORTA.	
	Natural.	Hyper-trophy.	Liquid black blood.	Coagula.	Liquid black blood.	Coagula.
Cases,	6	3	2	8	2	2

LUNGS.					KIDNEYS.	BLADDER.		UTERUS.				
	Natural.	Engorged.	Hepaticized.	Tubercles.	Emphyse-matous.	Natural.	White fluid in calices.	Contracted. White fluid.	Urine.	Distended with urine.	Empty.	With red fluid.
Cases,	3	2	5	1	3	7	3	5	3	2	0	4

I must take the liberty of begging the reader to observe that the lungs were found hepaticized in one half of the subjects whom we dissected after reaction. I conceive this to be a very important circumstance; perhaps one of the most important, practically speaking, which dissection affords; as it teaches what we have to fear in cholera after reaction has occurred.

3d. Organs of the Nervous System.

BRAIN.			
	Injection of the membranes.	No congestion.	Slight congestion. Great congestion.
Cases,	3	3	5 1

Effusion under the arachnoid.		Ventricles.	
		Empty.	Containing a little serum.
Cases,	5	2	7

MEDULLA SPINALIS.		SEMITUNAR GANGLION.
	Natural. Serum under arachnoid.	Natural.
Cases,	3 1	9

An attentive perusal of the detailed dissections of those subjects, who died after reaction, shows that in some of them the disease of the alimentary canal went on increasing, while in others it became much less; and that in these death was owing to a congestion of the brain or an inflammation of the lungs.

TREATMENT.

Unhappily most of our evidence upon this subject must be negative; for such were their results. It would be easy, by considering the cases collectively, without attention to the individual peculiarities of each, to show

that certain modes of treatment were successful in a considerable proportion^d of cases of cholera. But we will not be guilty of such self-deception, neither will we, not being ourselves deceived, mislead others, who might read such general statements without examining into the circumstances of the individual cases, which form their pretended basis.

In order to avoid the erroneous conclusions, to which I have just referred, and to make an honest, and, as I hope, just representation of the modes of treatment adopted, and of the success or failure of each, I shall still follow the great general division of my cases into those, in which no reaction occurred, or in which it was very slight and transient; and those, in which a full reaction was established. Instead of tables, by which I fear it would be impossible to make the truth evident, each mode of treatment will be stated under a distinct head, with remarks upon the peculiarities, as to the subject, the period, the effects, &c., in each case or group of cases, as these peculiarities may be solitary, or may appertain to several individuals.

I. Cases in which reaction was not established.

First. Heat and Friction. These were employed in all cases to restore warmth to the surface, and to overcome, or to diminish the severity of the cramps. The mode of applying heat was varied, but in this first class of cases, as their very title indicates, it was not attended with much success. The severe sufferings produced by the cramps were often very much alleviated by friction; and indeed I know of no application which afforded so much relief. Friction with a small hand-brush is much more speedy, as well as more efficient, than with the hand or with flannels. I have at this moment the most vivid recollection of several cases in which the patient, who before was tossing and writhing with agony from the excessive suffering produced by the cramps, has been at once tranquillized and composed, after a few moments of energetic friction. At each recurrence of this symptom the patient would beg for a repetition of the remedy;

and I am sorry to add, too often did he have occasion to complain that it was not duly administered during the absence of the physician. All this is mentioned to show that by this simple and easy means, the patients' greatest sufferings were much relieved; which, in a disease like this, is a circumstance of the highest importance. Let the medical man ever remember that it is as much his duty to alleviate the pains, as to cure the disease which produces them; and let him not fail to impress upon the attendants of the sick the great value of this remedy, which, though fatiguing in its application, is truly a most potent palliative. I take the liberty of insisting upon this point, from a conviction of its utility, and from a knowledge of its frequent neglect to a most culpable degree by those left in charge of the patients.

Second. Blood-letting by venesection and by leeches. Of the thirty cases, now under consideration, eleven were treated by venesection, or leeches, or both. 1st. An attempt was made in three of these cases to obtain blood by venesection without any previous stimulation of the system, while the pulse at the wrist was imperceptible, or thread-like, and the surface of the body blue and cold; but in less than twenty-four hours from the commencement of the disease. It failed in each instance; no blood, or rather very little only could be obtained, and that slowly and drop by drop. The blood flowed as it does from the divided vein of a body in the dissecting-room. In the two first of these cases (Nos. I. and IV.) death occurred in less than an hour after this attempt to obtain blood was made, before any other treatment could be employed. In the third (No. VI.) forty leeches were applied to the epigastrium, after which the oppression was somewhat diminished; but the result was not the less fatal. It is too obvious that bleeding like this must necessarily be useless; and, indeed, such cases cannot be received as any evidence whatever against the success of bleeding properly employed, *i. e.* after the system has been so far stimulated and excited, as to enable us to get blood freely.

2d. We pass now to two cases, (Nos. VIII. and XXVIII) in which leeches to the number of sixty in the first, and twenty-five in the second, were applied to the abdomen during the first twenty-four hours, without any previous excitement of the system. Blood was obtained in each case, but without effect; reaction was not established; one of them proved fatal before the end of the second day and the other on the fourth.

3d. Leeches were employed in two other cases, (Nos. XIII. and XXVII.) after an unsuccessful attempt to excite the system with wine and alcohol. In the first, thirty leeches were applied to the abdomen thirty-six hours after the attack, and the same number again the next morning. In the second case, thirty leeches only were applied and these, on the third day. Blood was obtained, but the disease was not arrested. In the case No. XXVI. twenty-five leeches were applied on the second day to the abdomen with some relief to the patient, but as in the other cases without any important effect upon the disease. In the case No. XX. fifty leeches were applied on the fourth day, the cold stage still continuing, without producing any effect, temporary or permanent.

4th. In one case, (No. XVIII.) on the fourth day, when some cerebral symptoms manifested themselves, though unaccompanied by any warmth of the surface or excitement of the pulse, twenty-two leeches were applied to the head and abdomen: the bleeding was not very copious and the patient died on the same day. In a second, (No. XXV.) in which there was a very slight reaction, attended with coma, blood was drawn from the arm to the amount of ten ounces on the third day of the disease; death occurred a few hours afterwards.

Third. Opium. The opiate practice was followed in eight of the thirty cases. Opium was given in some cases by the mouth, to the amount of three drachms of laudanum; in others it was given by the rectum. In several of the cases, alcohol was combined with the laudanum. In one or two cases there was a slight return

of warmth and the abdominal symptoms were somewhat checked ; but in these severe cases I could not perceive that any essential effect was produced by this treatment upon the progress of the disease. It may be added that, besides these cases, in which the opium was used alone, or combined only with alcohol and æther, the same treatment was also employed in some of those cases which we have already noticed under the head of blood-letting, and also in some of those which are to follow under that of quinine. During the earlier days of the epidemic, I imagined that the comatose state, which so often closed the life of a cholera patient, was owing to the opium ; but a more extended observation afterwards rather led me to the opinion that this state was one of the natural and ordinary phenomena of the latter stage of the disease, and not owing to the opiate or any other practice.

Fourth. Quinine. This remedy was employed by M. Andral in five of the thirty cases. In three (Nos. III. XII. and XV.) it was commenced during the first twenty-four hours, and carried to the extent of fifteen to forty grains of the sulphate without any apparent effect whatever. In the two others, (Nos. XVII. and XXI.) it was commenced on the second and fourth days, and given in the same doses, but equally without effect. In several of these cases stimulating frictions with tr. canthar. &c. were made use of, and in one wine, and in another laudanum was given at the same time with the quinine.

II. Treatment of those cases in which reaction was fully established.

First. Heat and Friction. We have already spoken of those methods of exciting the system. In the present class of cases they certainly seemed to contribute somewhat towards inducing reaction. But in far the larger number of cases the reaction was explained by the greater mildness of the disease. In all of them the cold stage was from its very commencement less severe than in those of the former class. Generally speaking, the cases constituting the

second were so much milder than those of the first class, that we must be very cautious not to attribute too much to the remedial measures, under which reaction occurred in the one, while under the very same it could not be induced in the other.

Second. Blood-letting. Of the thirty cases belonging to this division, nineteen were bled, either locally or generally, or both, at some stage of their progress. In order to estimate these cases fairly we must divide them into two classes, according to their severity; and again, we must point out the period, at which this treatment was employed, whether before reaction, at its very commencement, or after it had already existed for some time.

1st. In two cases, (Nos. XLIV. and LIII.) belonging to the severe class, V. S. was attempted during the first twenty-four hours and while the cold stage still existed; but, as in similar cases before noticed, no blood, or very little only could be obtained. Reaction occurred in each, but very certainly not as the effect of the bleeding; and, as leeches were afterwards applied in both of them, they will be again noticed under another head. In a third case, likewise severe, (No. XLIII.) thirty leeches were applied to the abdomen during the first day and while the cold stage still continued; this local bleeding was followed by an immediate diminution of the local symptoms and by a full reaction, under which V. S. was successfully employed. To this case also I shall again have occasion to refer.

2d. In three more cases, which must be considered as second to the former in severity, (Nos. XXXI., XLV. and LIX.) blood-letting, local or general, was employed on the first day and during the cold stage; reaction came on and convalescence was soon established.

3d. Of the severe cases, eight were treated by bleeding after reaction was established. Of these eight, two recovered; the other six proved fatal. An important question here presents itself for our investigation. Was

there anything peculiar in the application of this remedy in the two successful cases, which can in way account for its good effects in them, while it failed in the others? A confident answer cannot be given; but we believe that there was. It is at least proper to point out one important distinction in the treatment of these two sets of cases, although we would not have it inferred that an attention to that would have rendered this practice successful in all the eight. Nos. XXXIV. and XLIII. recovered, while Nos. XXXVIII., XXXIX., XLII., XLIV., LIII., and LIV., proved fatal. *In the two which recovered, recourse was had to blood-letting at the very commencement of reaction; whereas in the others, which proved fatal, this reaction had been already allowed to go on from twenty-four to seventy-two hours before blood-letting was made use of.* A reference to the detailed cases will show the truth of this assertion; and the distinction must be regarded as of the utmost practical importance, and claims the attention of every man, who would rightly treat the secondary stages of this disease. This treatment is generally spoken of as a matter much more easy, simple and sure than it really is. In truth, it is often very difficult to appreciate duly the commencing signs of reaction, and to meet them vigorously at the only moment when they can be combatted with success. We feel persuaded that an attention to this distinction in practice will lessen the mortality of the epidemic by one twentieth at least, and perhaps one tenth; a diminution surely of no small importance. We insist upon it the more, because cases so treated are almost the only cases of cholera, which we have seen, in which death, when threatening, has seemed to have been averted by art.

4th. Again, of eight cases of the less severe class, in which blood-letting was employed after reaction was established, all recovered. These were Nos. XXXII., XXXIII., XXXV., L., LIV., LVI., LVIII., and LX. In three of these, the bleeding was resorted to in order to subdue an inflammation of the lungs, which had supervened secondarily.

From the facts stated in this and in the former section upon the subject of blood-letting, I believe we may safely draw the following conclusions :

1st. That, during the cold stage of severe cases of cholera, it is impossible to obtain blood by venesection ; at least, unless the system be first artificially excited.

2d. That blood may be obtained by leeches during the cold stage ; but that, in the majority of our cases, reaction has not followed this local depletion, even though it has been effected during the first twenty-four hours of the disease. Of those cases, in which reaction did follow this treatment, one only recovered.

3d. That, even when the patient has survived to the third or fourth day, the cold stage still continuing uninterrupted by any symptoms of reaction, full bleeding by leeches is no more successful than at an earlier period.

4th. That depletion, local or general, or both, seems to have been useful even in severe cases, when employed at the very commencement of the reaction.

5th. That this same treatment seems to have failed in several cases, because it was not practised at a sufficiently early period after reaction had commenced.

6th. That in several slighter cases, which were not dangerous in the same degree as the former, although perhaps not altogether free from danger, the blood-letting seemed in some to hasten reaction, and in others to prevent or subdue local disease, when reaction was once established.

Third. Ipecacuanha. This remedy was tried in seven cases by M. Andral, and was given to the amount of twenty-four or thirty grains at a dose ; and sometimes was repeated two or three successive times. From this remedy we did not witness the wonderful success which is said to have followed the use of it in Vienna. In the severe cases it seemed to have no effect whatever ; in the milder cases the abdominal symptoms were sometimes diminished after it.

Fourth. Opium. In the milder cases the disease

seemed to be sometimes completely checked by the use of opiated injections. In the severer, as before, we may here also say that the abdominal symptoms were often diminished by opium ; but we could not discover that it produced any essential effect upon the disease.

HAVING given as faithful a statement, as I was able, of the facts which I observed during the epidemic at Paris, and having called the attention of my readers to what I regard as the most important points of view, under which they can be considered, I shall now take the liberty of making a very few remarks upon the nature of the disease.

Our knowledge of a disease can be obtained from two sources only, viz : its symptoms and the appearances of the body after death. Let us look to these two sources of knowledge, and endeavor justly to estimate the two classes of phenomena which will present themselves to our view ; and lastly, let us see whether the one will so fully explain and account for the other, as to justify us in the assertion that we have arrived at a knowledge of the seat and nature of this extraordinary affection.

It will be useless to go over in detail and to describe all the symptoms indicating derangements of the different functions. It is enough to state, in a few words, that the digestive function ceases ; i. e. the stomach can no longer digest food ; that the circulatory and respiratory functions are greatly disordered ; that the functions of nutrition, secretion and excretion either cease to be performed, or are strangely modified ; that the same is true of calorification, which perhaps should be enumerated among those last mentioned ; that all the animal as well as the organic functions are affected ; the mental powers are prostrated, though not irregularly exercised ; the senses are rendered obscure and imperfect ; the muscular strength is gone, and peculiar and involuntary contractions occur in the voluntary muscles. In other words,

every function of the whole animal economy is, in a greater or less degree, modified. There is an unknown something, which possesses every part and turns it from its wonted to some diseased action, or paralyzes and as it were deadens it. Thus far I presume all will agree. But, such being the case, the next question, which presents itself, is, whether this general affection be owing to an original local disease of some one organ, the derangements of all the others being sympathetic; or, whether the cause producing the disease acts on all and each of the great organs of life directly, or through some common medium, instead of thus acting immediately on one sole organ, and indirectly on the rest.

First. What evidence can be obtained for the decision of this question from a consideration of the symptoms of the disease? I shall notice one local affection only, which has been imagined to be the seat of the disease and sole first cause of all its symptoms, viz: that of the stomach and bowels. The doctrine of M. Delpech, that cholera consists in an inflammation of the semilunar ganglion, we cannot conceive to be worthy of consideration, after the most ample refutation of it afforded by our dissections.

Does the history of the symptoms, then, prove that this disease consists solely and essentially in an inflammation of the stomach and bowels? My own answer to this question must be decidedly in the negative, and chiefly for two reasons.

1st. The amount, the severity and the rapidity of the disease are by no means always proportionate to the gastric and intestinal symptoms. For the proof of this assertion I must refer to the detailed cases, and especially to some of those, whose duration was very short. I would willingly discuss this point in detail, but cannot forget the promise that the speculative part of this paper should be very brief.

2dly. Upon this supposition of a local disease, I cannot account for all the symptoms in any way, which accords with my previous experience of disease. More especial-

ly, the peculiar and characteristic affections of the circulatory, secretory and animal systems cannot be attributed to an inflammation of the stomach and bowels, since these organs, or at least the last, are often inflamed without being accompanied by the same appalling phenomena. Why is the heart thus paralyzed in its action? why have the kidneys and the liver ceased to secrete their wonted fluids? We are told that the cessation of the urinary secretion is owing to the excessive loss of serous fluid from the intestinal canal. This at first sight seems to be a plausible explanation. But 1st, why is there not the same suppression of urine in all cases of an equal secretion from this canal? 2d, How shall this suppression be accounted for, upon the above mentioned hypothesis, in those cases of this disease, where the secretion from the intestinal tube is very slight? Such cases occur and some such I have related. 3dly, Why, if this explanation be the true one, do we not observe a return of the renal secretion, as soon as that excessive flux from the intestinal canal has ceased; of which point again the cases I have related afford ample illustration? It is, in my opinion, equally impossible to explain several other symptoms of cholera upon this supposition.

But, it may be asked, upon the other hand, are not the abdominal the very earliest symptoms in the vast majority of cases? are they not most often the first evidence we have that the body is diseased? Most assuredly they are; but this is by no means absolute proof either that the disease commences in the stomach and bowels, or that at its commencement it has its exclusive seat in those organs.

Again, it may be asked if the symptoms of gastric and intestinal derangement are not by far the most universal effect of the epidemic cause upon the individuals exposed to its influence? Undoubtedly they are so. But because they are produced alone, and exist without any *appreciable* affection of the general system in numerous cases, arising from the same epidemic cause with the more se-

vere and fatal cases of disease, is it thereby proved that these last cases are severe only because the local disease is more severe? I believe not; for if it were so, an uniform proportion would exist between the local and general symptoms, which observation teaches us does not exist in reality. And again, because one series of organs only is affected by a peculiar cause in a certain number of individuals, does it follow that several or all the series may not be affected just as directly in another set of individuals by the very same cause, in virtue either of its own intensity, or of the peculiar state of the subjects exposed to it?

I will pursue this subject no further. I have suggested some few points, which seem to me to bear mainly upon the decision of the question; and, unwilling to enter into a longer discussion of it, shall simply state that the symptoms of cholera, or its phenomena during life, forbid me to consider it essentially and solely a local disease.

Second. What do we learn of the nature of this disease from the morbid appearances discovered after death? Most assuredly the only appreciable affection, which is at all constant, is that of the mucous membrane of the stomach and intestines. Whether this affection is to be regarded as an inflammation in the majority of the cases, or not, is somewhat doubtful; and in each case must be decided by what we consider as anatomical evidence of inflammation. This is a very obscure and very difficult subject. To enable me to express my own opinion upon it, I must first state what, with my present limited knowledge of the science of morbid anatomy, I esteem anatomical evidence of inflammation.

In order rightly to understand the pathology of the mucous membranes, it must be remembered that in these membranes are two sets or orders of formative vessels, whose functions are entirely distinct. One is superficial and constantly engaged in secreting a fluid upon the free surface of this membrane; the other is deeper seated, and its function is to nourish and form the substance of

the membrane itself. This being understood, it can be easily conceived that both these sets of vessels may be so influenced by the same cause, as that they shall perform the same morbid operations ; that is, under the same influence, they may each secrete precisely similar materials. But, though there should be the same morbid actions thus produced in these two sets of vessels, would the results likewise be the same ? Clearly, in these results there would exist several very important differences. Whatever is secreted by the superficial vessels is thrown out at once upon a free surface : it is not mixed with the substance of the membrane ; it cannot therefore either add to the thickness, or diminish the consistence of that membrane. On the other hand, if the very same material be secreted by the deep-seated vessels, this is at once and necessarily intermixed most intimately with the substance of the membrane itself, which then becomes thickened, or softened, or both, as it may happen. But, although the anatomical results be so different, and although that difference be very important, yet it may be asked, what is the distinction between the morbid processes, which have been performed by these separate orders of vessels ? For my own part I can see no difference. They both act under the same morbid stimulus : by the influence of this stimulus they secrete or effuse precisely the same materials ; and the only distinction between them is, that the materials secreted by one fall upon the surface of a membrane, leaving it to all appearance as perfect and healthy as it was before ; whereas, in the other, these same materials fall into the substance of the same membrane, the result of which is a change in its structure. This, while it lasts, prevents the organ from exercising its due and healthy functions. These processes are, in my mind, to say the least, very analogous. When it appears, therefore, that in the stomach and bowels of cholera patients there exists, almost always if not uniformly, mucus either adhesive or opaque, or serous fluid with or without the small shreds of coagulable lymph, I feel justified in re-

garding these as evidence of a process, to say the least, entirely analogous to the real and undisputed process called inflammation of the substance of the membrane.

This being premised, I will now state what I conceive to be the anatomical characteristics of an inflammation of the mucous membranes.

1st. Redness alone is very rarely sufficient evidence of inflammation; but when this redness is bright and arterial, when it is produced by a fine capillary injection of the mucous membrane itself, although this membrane preserve both its natural thickness and consistence, especially if at the same time the surface of this membrane be covered by a very adhesive mucus, or if the organ of which it forms a part contain either a bloody or a purulent fluid, or portions of coagulable lymph, I should regard the evidence of inflammation to be satisfactory.

2d. A state of the mucous membrane termed by M. Louis, who first described it, 'mamelonnement,' and which may, though less correctly, be designated by the English term granulation, as it very much resembles that state of the eye-lid which is known by this name, whether it be or be not accompanied by redness, I believe to be evidence of inflammation.

3d. An increase of thickness, or a diminution of it in stripes, with or without redness.

4th. A diminution of the consistence of the membrane, with or without either of the preceding characters.

5th. Ulceration.

6th. Gangrenous sloughs of a dark green, or dirty grey color, evidently separating themselves from the surrounding parts.

After what I have said upon the anatomical characters of inflammation of the mucous membrane, and upon what I regard as the proper view of the morbid secretions upon its surface in cholera, it need not be added that in my opinion an inflammation, or a morbid process in many respects quite analogous to inflammation, of this membrane, always exists in this disease. I should hope not to

be thought to undervalue the distinction between a morbid action, which is limited to the free surface, and one whose seat is in the substance of the membrane itself. This distinction is certainly of great importance, because the results or effects of the two processes upon the structure of the membrane are very different. But this seems to me consistent with the belief that the processes themselves are essentially the same.

I insist upon this point, because it has been stated by many observers of cholera, and the opinion still prevails to a very considerable extent, that pathological anatomy throws no light upon the nature of the disease. For myself, though unable to explain numerous phenomena and symptoms, without the supposition of some more general affection of the system, I must believe, from the phenomena in the dead body, that this local affection of the stomach and bowels is an essential and a very important element of cholera.

I ought perhaps to have mentioned the enlargement of Brunner's glands among the evidences of inflammation of the mucous membranes. It was in truth one of the most constant of the morbid changes. But I omitted it, because I feel some uncertainty as to the relation between this enlargement of the secretory organs and inflammation.

But there is yet more to be learned from pathological anatomy. By it we discover, what it would have been impossible to gain a knowledge of otherwise: I refer to those latent inflammations of the lungs, which so frequently occur during the stage of reaction. These, from their frequency and from the part they must necessarily bear in producing the death of the patient, are all important and deserving of our most serious attention. Let us remember that, of ten cases of death after reaction, in which the subjects were dissected, the lungs were found to be hepatized in five; and that in these five the pneumonia was latent. To these we may add four other cases, of which we have given detailed notes; and may here make men-

tion of two others which we saw, but of which we have not the history, where the lungs were likewise inflamed and discovered to be so during life. As an incentive to an earnest attention to this subject, I will state that, of these six cases in which the pneumonia was discovered, one only proved fatal, as antiphlogistic treatment was immediately resorted to; whereas those, in which it was not discovered, all proved fatal. It should be remarked that auscultation was not employed in either of these last cases. Had it been, the disease would undoubtedly have been discovered; and, although the extreme prostration of the patient must always be a serious obstacle to its easy performance, it is most earnestly to be desired that auscultation be not neglected in any case whatever, after reaction.

As to treatment, I have nothing peculiar to suggest, which will not occur to and be tried by every American practitioner. I have stated what was the success of several different forms of treatment under MM. Andral and Louis; and from their cases have endeavored to point out the extreme importance of seizing the first moment of reaction for immediate and bold depletion. As to the means of establishing reaction in the severe cases, where the cold stage is very marked, I must confess that all that I saw tried were inefficient.

Having had an opportunity of conversing with Dr. Stevens, who first suggested the *saline treatment*, which is said to have been so successful in some parts of London and in Ireland, I will give a brief account of what I learned from this gentleman. His views of cholera are quite original and peculiar; they are much the same, indeed, as those which he published some years since in regard to the yellow fever of the West Indies. The essential peculiarity of his views is, that the disease is owing to a deficiency of the salts of the blood. This observation of Dr. Stevens, as to the deficiency of the saline elements of the blood, has been confirmed by Dr. Turner, the distinguished Professor of Chemistry in the London Univer-

sity, and by several other celebrated chemists. Upon this circumstance Dr. Stevens founds his treatment. His object is to restore to the blood its saline materials through the medium of the alimentary canal. Having acted upon this theory, he relates the most wonderful accounts of the success of his practice, which is as follows :

R. Sodæ Carbonat. ʒ ss.

“ Muriat. ʒ i.

Potass. Chlor. gr. vii. M.

Let this be dissolved in half a tumbler of water, and give the whole of it, repeating the same every half hour or hour, according to circumstances.

Frequent and very large enemata of saline solutions are given at the same time.

Dr. Stevens informed me that he made great use of large and free sinapisms in combination with his other treatment. He assured me that of twenty most severe cases treated in this manner three only died. I inquired if the reaction, which followed the cold stage after this treatment, was often such as to require depletion, and was assured that it was not. Not one of the seventeen patients, in whom it was successful, was bled.

Such is the information which Dr. Stevens was so good as to give me. I repeat it as I received it, without adding any comments.

ERRATUM.

The word *doze* and its derivatives has in most instances been spelt with an *s* instead of a *z* in this book. This error was not in the manuscript; it occurred from circumstances whimsical enough, but which need not be detailed.

POSTSCRIPT.

After the last sheet of this work was in the hands of the printer, I received from my son a letter respecting the use of *saline injections* in cholera. Full of anxiety respecting the prevalence of this disease in his own country, and quickened by a rumor which had just reached him that it had already appeared in Canada, he took especial pains to learn what evidence there was for or against this new remedy. On his arrival at Edinburgh, he found the disease increasing there, though not very greatly. The saline injections were much in use. The result of his inquiries respecting the effects of them has appeared to me sufficiently interesting to warrant this postscript. His letter was not written with a view to publication, but the following observations are derived from it, and are given as nearly as may be in his own words.

JAMES JACKSON.

August 27, 1832.

The saline injections are employed only in the bad cases; in the state of collapse, or when the patient is cold, livid and pulseless.

The immediate effect is to produce excitement, i. e. increase in the force and fulness of the pulse, warmth, a better complexion, and more comfortable feelings. These effects, however, are not produced in all cases.

These grateful effects are sometimes of very short duration, and the injection is employed a second and a third time. Death sometimes occurs in the collapse following the first excitement. A majority of those, who are injected, ultimately die.

Frequently, indeed most frequently, when the artificial excitement is not followed by collapse, the reaction is too great, and marks of cerebral affection ensue. Then the case proves fatal, unless it can be relieved by blood-letting, general or local, aided by mercurials.

Thus, if the injections are beneficial, it is principally in bringing

the patient into a state, in which other active remedies may be employed.

It appears clearly that the injections may be employed with safety ; and they promote so much the comfort of the patient, that one eminent physician in Edinburgh said he should feel culpable, if he omitted the use of them, even on that account alone.

The injection employed is composed as follows, viz :

R. Sodæ Murialis	3 ii.	
Sodæ Bicarbonatis	9 ii.	
Aquæ	Ö v.	M.

This solution is used at the temperature of 112° to 115° Fah. Its heat is preserved during the operation by placing the vessel, which contains it, in another vessel of hot water. The operation is performed with a small syringe and very slowly ; for example, ten or fifteen minutes are occupied in the injection of five to eight pounds of water.

The quantity used at one time is determined by the effects. In other words, the injection is continued until the object is obtained, which is shown by the return of pulse, of warmth, and of natural color. "One woman is well and walking about, who had *fifty-one pounds* of the saline fluid injected, besides a solution of quinine and morphia. There were, of course, several distinct injections in this case."

After the injection has produced its effects, calomel and opium are immediately given, and they are repeated subsequently p. r. n. with a view to produce salivation. For this purpose mercurial ointment is also directed.

Meanwhile the physician watches over the reaction, and, at the first symptoms of excess in this, he resorts to the lancet and to leeches.

These statements were derived from physicians of the first standing in Edinburgh, men who are known everywhere, but whom it is not proper to name without their permission.

In regard to the ultimate benefit of this treatment, two or three of these gentlemen had nothing favorable to state from their own experience ; most of them, however, reported otherwise. That is, each one of these believed that he had seen a *few* instances of recovery after the use of the injections, followed by the bleeding, &c. ; in which death would have ensued, if these remedies had not been employed. In these instances the injection was thought to have placed the patient in the situation in which bleeding could be employed, and under which it was employed.

The writer gives a detailed account of four cases, in which he saw the saline injections administered, but in three of which the final

result was not decided. In one the effect was very slight, and she died the next day. In the others temporary relief was obtained. The following extract will give a distinct view of this relief. "A. B. a woman, who had been sick seventeen hours, had a blue, cold, clammy surface, with the countenance of cholera, and was without pulse. Seven pounds of the solution (before described) were injected. In one minute and forty seconds from the first push of the syringe, I felt the pulse at the wrist; soon it could be counted; and in six or eight minutes it was quite strong and firm, and as full as my own, or nearly so; the blueness had disappeared, the face had become red and quite hot, and she began to sweat; likewise she felt easier, and soon I observed that she was inclining to sleep. Mercurials were prescribed to be given freely, and we left her. At 6 P. M. (seven hours after the injection was employed) I saw her again. She was now pulseless, pale, livid and prostrated, as much as in the morning; at the same time restless, tossing herself about, &c. Three pounds more were injected. The effect was more slight than in the morning, and more slowly produced. It was likewise more transient. In less than ten minutes after the revival there was no longer any pulse at the wrist, and the surface was getting cold." Two days afterwards (the last date of the letter) this patient was threatened with cerebral symptoms, though without much vigor, and her fate remained quite undecided.

The whole result of my son's inquiries was, that he entertained very slight expectations of benefit from the treatment of cholera by saline injections; yet that the practice was safe, that it was certainly a palliative in some cases, and that it merited further trials.

At a moment, when the future ravages of this disease in our country give rise to just apprehensions in the most sober minds, I presume that an apology must be unnecessary for any information, however imperfect, in regard to the treatment of it.

THE END.





Accession no. 31815

Author Jackson, James
Jr.

Cases of cholera

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